The COPPER Revolution

Healing With Minerals

Jason Hommel

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ISBN-13: 9781234567890
ISBN-10: 1477123456

ISBN: 9798799681142 - paperback version

Cover design by: Art Painter
Library of Congress Control Number: 2018675309
Printed in the United States of America

To my wife, Jennifer Hommel. Thank you for being the first to take "high copper" with me, going above 10 mg per day, being brave enough to explore the unknown. Thank you for all of your encouraging words, and your feedback as to what vitamins and minerals you think we might need. Thank you for joining me and partnering with me on our upward spiral of health!

I love you. Thank you.

Deuteronomy 8:7-20
King James Version
7 For the Lord thy God bringeth thee into a good land, a land of brooks of water, of fountains and depths that spring out of valleys and hills; 8 A land of wheat, and barley, and vines, and fig trees, and pomegranates; a land of oil olive, and honey; 9 A land wherein thou shalt eat bread without scarceness, thou shalt not lack any thing in it; a land whose stones are iron, and out of whose hills thou mayest dig brass (copper).

Prophecy fulfilled:

The Timna Valley is located in southern Israel in the southwestern Arava/Arabah, approximately 19 miles north of the Gulf of Aqaba and the city of Eilat. The area has been mined since the 5th millennium BCE as it is rich in copper ore.

What I mean to say by this is that copper is more than good and useful, it is a blessing, a part of the blessings and gifts of God.

PREFACE

Hosea 4:6 My people are destroyed for lack of knowledge: because thou hast rejected knowledge, I will also reject thee...

Daniel 11:33 And they that understand among the people shall instruct many...

Proverbs 18:17 The first to state his case seems right until another comes and cross-examines him.

Deuteronomy 19:15 A single witness shall not rise up against a man on account of any iniquity or any sin which he has committed; on the evidence of two or three witnesses a matter shall be confirmed.

Matthew 7:7 Ask, and it shall be given you; seek, and ye shall find; knock, and it shall be opened unto you:

Matthew 7:8 For every one that asketh receiveth; and he that seeketh findeth; and to him that knocketh it shall be opened.

Matthew 7:9 Or what man is there of you, whom if his son ask bread, will he give him a stone?

Matthew 7:10 Or if he ask a fish, will he give him a serpent?

Matthew 7:11 If ye then, being evil, know how to give good gifts unto your children, how much more shall your Father which is in heaven give good things to them that ask him?

Matthew 7:12 Therefore all things whatsoever ye would that men should do to you, do ye even so to them: for this is the law and the prophets.

What I mean by these verses is that this is a book for people who seek truth. This should almost go without saying. But in this era, I have learned I have to say it. Because not all people actually seek truth. Most people run away from it, because truth usually hits you in the pride buttons, and tells you where you went wrong. Only wise people actually enjoy this kind of pain, because then they can actually do something about it, and then be right, and enjoy the fruits of doing beneficial things, like taking more copper supplements.

Yes, this book advocates that you should take copper supplements, and take far more than the average person who actually takes copper supplements, which is only 15% of the population, taking from 1-3 mg. That might be something new. The vast majority of people, do not take any copper, and those who do, not enough copper, based on my studies, which follows.

This is not a book for people who are self-deceivers, which is the worst kind of lie you can tell. Why lie to yourself, right? But some people are so used to lying, and they lie so often, and lie so frequently, that they lie to themselves, too, and prevent themselves from being able to recognize truth, or make use of truth. I run into these people, and when I do, I disassociate myself from them immediately. I recognize it mostly when people resort to lying to me about me. Excuse me. I know when people lie about me, because I know my motivations and knowledge, what I have done, and they do not. It's quite sad, really. They are so filled with lies, they don't even know that I would recognize their lies immediately, and that I would not be impressed. Liars hurt themselves, and those around them, more than they know. I think they are really hurting in some way, to try to use lies to protect themselves, but they are in traps of their own making, trapping mostly themselves. For example, if you lie to yourself, and tell yourself that I'm only writing this book to make big bucks selling copper supplements, when that is not true, who is hurt? Primarily yourself. It is all too easy to tell yourself lies, rather than adopt truths that will encourage you to change for the better, and for your own good. Even that is difficult, because it requires you to admit that you are not there yet.

Yet, people buy "how-to" books all the time. This book is more than "how to take copper" it mostly focuses on why to take copper. Then, at the end, I get to the "how-to" and "how much", and what to watch for, and other details.

I think the truths in this book may be more important than I could realize at this time, because it can change society in profound ways.

Copper increases intelligence. Imagine if people started getting smarter, instead of dumber? I can hardly imagine that.

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About The Author
Books By This Author

DISCLAIMER

I am not a doctor. I am a thinker, a reader, a researcher, a writer, a marketer, and more.

I do not want to be a doctor. I never wanted to be a doctor. I do not hold myself out to be a doctor.

It is illegal for someone who is not a doctor to diagnose an illness in a person, and it is illegal to prescribe prescription poisons unless you are a doctor.

But copper is not a drug. Copper is a nutritional supplement and is available without a prescription. This means you do not need to consult a doctor before taking it. Copper is just like any other nutritional supplement like Vitamin C or Magnesium.

I do not sell copper supplements, and I do not plan to sell copper supplements. My understanding is that the FDA has blocked and prevented people, by regulation, from simultaneously making health claims about a substance, and also selling that substance. This does not seem to apply to pharmaceutical companies who appear to be exempt. I hope that someday this law is overturned and that people have freedom of speech again, but I do not plan to be the one to challenge it.

Healing is not for everyone. Many people are paid to be sick forever. They call this form of payment "disability". Therefore, many people have a strong financial incentive to remain sick. I sincerely believe that if people want to remain sick, we should let them. But I do not feel we should enable them.

There are liars in the world. People lie for many reasons that we will never know. I try to not associate with liars. If people lie about me, I block them. I try to tell the truth as much as possible. This does not mean I never make a mistake. I'm human.

This book is not medical advice, because I do not advocate any prescription medicines.

This book is health advice, covered under the first amendment.

The first amendment to the US Constitution gives us freedom of speech and religion.

Jesus said: "Heal the sick." --Matthew 10:8. This is a command I am aiming to obey.

INTRODUCTION

I believe copper is the most important nutrient, the least popular, the most needed, the most slandered, the most misunderstood, and the cheapest of all minerals.

"The National Institutes of Health (US Government) did a study showing that 81 percent of people have less than two-thirds of the recommended daily allowance of copper (of 0.9 mg)."

I have no monetary bias, because copper is a micronutrient, and therefore, copper supplements are extremely cheap, almost free. You can double your copper intake for about 3 cents worth of copper sulfate that will last you about 3 years. That's not 3 cents a day. That 3 cents worth of copper will make a small 2 oz. dropper bottle containing 1182 mg of copper that will last for 1182 days, if you take minimum amounts. If you take a lot, that might last 1-2 months. If you buy any supplement in the store, it's typically $10 for a month at the cheapest, and you are paying for convenience, labeling, bottling, and shipping.

So copper is 3 cents for three years. Any other copper supplement: $360 for three years. It's not even close.

Copper is far cheaper than iodine, and is probably far more important. And I just love iodine!

Here's how to make your own copper sulfate supplement. Buy pure copper sulfate pentahydrate blue salt crystals, (they sell it at amazon.com, or anywhere that copper sulfate is sold) at 99.9% purity, with 25% contained copper. That's as pure as things get. It is both pharma and food-grade, but they will not likely use such words. It is sold in 1 pound, 5 pound, and 10 pound bags, etc. A 1 pound bag costs $6 and should last you 10 to 20 years if you take even a lot of it.

To make a solution, of 1 mg of contained copper per liquid drop:
Measure out 5 x 1/8 teaspoons of copper sulfate crystals into a 2 oz. dropper bottle.

Then add boiled distilled water, and shake. That's it.

The actual measurement is 4.7 grams of copper sulfate pentahydrate. This is about 4 times the 1.18 grams of contained copper, or 1182 mg that you are aiming to put in the 2 oz. bottle. Because, again, copper sulfate pentahydrate is 25% actual copper.

The point here is that this book is not advocating a way for me to get rich selling copper supplements. I have been accused of that. I do not even sell copper supplements. The point is that this information is purely for your own health and well-being, with no monetary conflicts of interest attached.

Copper deficiency appears to be implicated in nearly all of the most common causes of death! Increasing copper intake will dramatically improve a wide variety of health issues, increasing the quality of life. In particular, many of the things that copper does in the body appear to keep us both looking and feeling younger. Increased collagen eliminates wrinkles. Increased dopamine and melanin helps to increase the color of the hair, reducing grey hair. Increased collagen strengthens bones, joints, muscles, and eliminates many body aches, arthritis, and other such connective tissue disorders. Increased collagen eliminates many other signs of aging: such as aneurysms, and heart conditions. Increased ATP boosts energy. Copper kills germs, boosts immunity, and increases red and white blood cells.

Copper also helps a wide array of diseases, discomforts, problems, and ailments that are not generally listed as "causes of death". These issues are arthritis and other connective tissue disorders such as hemorrhoids and hernias; Alzheimer's, MS, & other nerve and brain disorders; bone, muscle, skin, circulation, heart, kidney, liver disorders; hormone, neurotransmitter disorders, cholesterol disorders, bleeding disorders, ulcers, heavy periods, anemia, and adrenal fatigue. And as copper helps to detox fluoride, too, then copper helps fix a list of 180 symptoms associated with fluoride toxicity, including cancer. It might be a shorter list to consider what body parts do not need copper, but as of yet, I have not found any. After all, all body parts need access to the blood and nerves, at the least, including hair follicles and teeth, and yes, copper is great for the hair and teeth. Every cell in the human body needs copper for a wide array of cellular reasons: for strong cell walls and a stronger cell wall of the nucleus, for the DNA, and for the mitochondria to make ATP for energy.

Because copper bonds to fluoride, it is one of the most widely slandered supplements and nutrients out there. The reason for this is that about 50% of the population of the USA still drinks tap water, which contains fluoride. I also sometimes do, whenever I'm in restaurants or buy a drink made with tap water. Fluoride in the water is an acid, and it binds to copper in the pipes and strips the copper from the pipes. And there are many other sources of fluoride that people don't know about. Fluoride disrupts copper metabolism. The average person has 2600 mg of fluoride in their body and only 77 mg of copper. Fluoride lowers ceruloplasmin, a key copper enzyme in the blood. This tends to cause copper to accumulate in the tissues, yet the person tends towards copper deficiency because the copper cannot be properly transported to where it needs to go. Copper is also one of the least championed supplements out there, as I can find no books making copper supplements their primary subject, except for Morley Robbin's book which came out in October, 2021, which I have still not yet read.

Humans are both naturally resistant to and skeptical of new information, and yet it is exactly the unknown truths that are typically the most valuable of information to learn. Humans also have trouble with confirmation bias, in that we tend to look for information that confirms what we already think we know, or may have heard. So if we hear copper is toxic, and then think copper is toxic... we have a bias. It is therefore very difficult to unlearn the slander about copper

because that would be information that does not confirm what we have already heard about, remember, and think we know. Furthermore, humans do not like to have to admit they have been deceived by a wide variety of people who claim copper is toxic, some of whom may have been mistaken.

I am drawn to study things that will benefit humanity, and things that are little known. For similar reasons, I got into the study of Bible Prophecy. I wanted to know what we were supposed to know but is little known about Bible Prophecy. Next, I was drawn into the study of gold and silver as money. They were used as money by most of humanity for thousands of years, but not so much in our era.

When I began to study about human health, I was initially drawn to study foods and herbs. I like herbs, and many are said to be high in minerals. But with so many foods and herbs, I was drawn to study vitamins and minerals and their corresponding deficiency symptoms. Next, as I discovered that minerals improved my own health more than vitamins or herbs, I shifted my focus more towards the minerals, especially the micro minerals like copper, zinc, iodine, boron, and many others. For a long while, I simply accepted the "upper human limit" on copper of 10 mg, and took from 3-9 mg of copper, thinking my research on copper and application of that research was complete. Eventually, I realized that while I had fixed a few of my low copper symptoms from that mild level of supplementation, I realized that I had plenty more low copper symptoms, such as joint pain, and low energy, and I had to wonder why copper caused me nausea.

Next, I finally did my full due diligence to look into how that "tolerable upper human limit" on copper was established, and upon what evidence it was based. It was arbitrary, and based on nearly nothing, or upon very bad and scant evidence, and done for political purposes of establishing minimums necessary for prisoners.

https://www.ojp.gov/pdffiles1/Digitization/110094NCJRS.pdf
"A correctional facility must prove menus being served meet the Recommended Dietary Allowance (RDA) of the National Academy of Sciences;"

The RDA for copper was entirely shoddy and unscientific, with no testing done, with a disclaimer that further testing and study was required, which was never done in the last 28 years.

Next, I had a breakthrough moment when I went above the "tolerable upper human limit," and took more copper and I discovered significant improvements in my own health, ranging from extra energy, extra brainpower, less sweating, less muscle pain in my workouts, and difficulty even achieving delayed onset muscle soreness from the most intense workouts I could imagine, and so I knew I had discovered something very important.

I had another big breakthrough moment when I learned to make my own liquid copper sulfate solution, which was ridiculously cheap, which I could apply to the skin to get even more copper and bypass the digestive system and nausea.

Next, I realized that there are no people really championing copper as a supplement, no books on

the subject, (except now Morley's) and that many of my favorite health gurus have also overlooked doing any deep study into copper. I realized I might be on to something even more important. Finally, after three years of research, I realized quite a few of the reasons why copper is slandered, and yet so desperately needed by nearly every system in the body, and that most people die from things that could be caused, in part, by copper deficiency, and that copper is like the fountain of youth, and I realized I really had something very important to share and that I must write "the book on copper".

People, and academic researchers, seem to believe that "truth will propagate on its own". Yes. Sort of. But it does not. The truth is that truth has to propagate through people. By itself, without people, a truth may remain hidden. The corollary of that is that truth needs people to champion that truth, and truth needs people to share that truth, and they need to figure out ways to reach people in ways that are profitable and so their reach can grow. We do not live in an era where truths are generally well accepted and well shared. We live in an age of censorship and media lies.

Also, people generally do not read academic journals that are filled with technical jargon that hides the truth from casual readers, or even me, who may read casually. I just read that a-tocopherol can help protect against copper toxicity in rats. But what is a-tocopherol? It's Vitamin E. Well, why didn't he say that? Because there are many forms of Vitamin E, and a-tocopherol is only one such form.

Furthermore, researchers are human. As such, they make many assumptions and value statements that seem wildly off base, just like any other typical human may make. For example, I'm reading that sheep cannot handle very much copper, and become "copper toxic" at "low" intakes. Ok. That may well imply that humans cannot tolerate much copper either, right? But, well, ok, but what is low? Naturally, the human range, since it's said to be from 1 to 10 mg, I would assume a "low" intake for the sheep would be 2-3 mg, or even lower than the natural human diet of 1 mg. My assumption was wrong in this case, as I was misled by the researcher using the word "low". Here are the actual numbers, including that word "low": "In contrast, copper toxicosis in sheep develops as a two-stage process, even at relatively low dietary copper intakes of <25 mg/kg (2)." From https://academic.oup.com/ajcn/article/67/5/1069S/4666233

Ok. Well, how much food/water does a human consume? 2.5 kg per day. Ok. 25 mg of copper x 2.5 is 62.5 mg. Wow. That's 6.25 times higher than the upper human limit of 10 mg for a human! That's "low"? Compared to what? Other animals?

Am I wrong or is the researcher wrong for using the word "low"? That could be low compared to the pig or the rat, which can tolerate much higher levels of copper. But the "low" sheep tolerance is also over 500% higher than what a human can supposedly tolerate. So it is very easy for researchers to accidentally hide or distort truth, which then gets further distorted by other researchers who quote it, by the use of imprecise grammar, and accidentally poor value judgments added into their text. For example, people will say that humans might be like sheep, and cannot tolerate "low" copper. And that would be junk science, or even not scientific at all.

Research on copper is limited in many ways. Copper has many interaction effects on many other

minerals, and it appears that these interaction effects are curvy curves. For example, at very low levels of calcium, copper is not absorbed as well. Then, with some levels of calcium, calcium helps a body absorb and utilize copper better than without enough calcium. And in turn, copper helps the body put calcium into the bones, so they work well together. But at higher levels of calcium, calcium can block copper, preventing its absorption. What is very low, what is some, and what is high? Neither I nor the researchers are yet very clear on that. I assume low calcium is in the 100 mg to 300 mg range, and that a high range is 500 to 5000 mg of calcium. But that is my educated guess. The point is that the researchers need to test copper along a wide array of both other minerals, and also other vitamins, and also at varying amounts of those vitamins and minerals. As one man put it, why bother studying or taking any, because these interaction effects will not be fully known for the next several hundred years. On the other hand, we do not need to fully know everything about how exercise benefits us before getting the benefits of exercise.

There are two other ways copper research is hindered. Today, it has become unethical to induce copper deficiency to see what it would do. That would harm people. That didn't seem to stop researchers in the '60s, but today, studies like this would not be approved. Furthermore, the US government has set the "tolerable upper human limit" on copper at 10 mg. While they do not ban studies above this level, actual studies on what copper does above this level are also very rare. I have found only one study mentioning people taking 20 mg for short periods.

Furthermore, it's not like we should not take minerals due to "risk", because risk is everywhere. There is a clear risk of copper deficiency. In fact, most people in America may be suffering from copper deficiency. By most people, I mean probably well over 80% to 90%, and perhaps nearly everyone, such as over 99.99% of people, which means, yes, you.

We just need to know enough to take reasonable, well-protected action. Not taking any action to supplement copper is also a choice and a decision. Perhaps it is the default decision, but it's a choice, nevertheless.

I agree and understand that over-supplementation of copper can be bad, just as too much exercise can be bad and lead to overtraining, exhaustion, lack of recovery, an injury. Ironically, it may well be that one of the biggest dangers of too much exercise is copper depletion! But how much is too much if the government's tolerable upper limit is not based on reasonable science? What is a better realistic level?

Copper deficiency is also a risk and a problem. Having suffered copper deficiency, and having found the solution by taking ultra-cheap copper... Well, let me say that copper deficiency symptoms like bleeding, sweating heavily, joint pain, muscle pain, neuropathy, brain fog, involuntary napping, low energy, depression, fainting, and many other things... are not things I'm willing to tolerate when there is no reason for it, and when the solution is obvious and cheap. So I take copper.

I am most interested to learn what are the optimal levels of copper to take? Especially for athletes. Nearly nobody has ever written on this or even attempted to establish an answer, not according to my extensive and repeated research. So, in this, perhaps I am paving the way. There may be a few other people similarly seeking to establish the answer to this same

question. I have just not yet found them, or they are just not publishing things I'm able to find and read, and I read on this subject regularly. For fun.

For example, I just tried again. I found this: https://www.caasn.com/copper.html The Canadian Academy of Sports Nutrition. They repeat and quote the same USA old upper limit of 10 mg of copper. Come on Canada, do your own research!

For me, because I exercise a lot, and take plenty of other copper antagonizing vitamins and minerals, I'm finding that 10 mg of copper is a minimum for me, and eventually still results in some deficiency symptoms. I have had good results with 20 mg, which may be optimal for me. I had a few months of labored breathing at levels from 30 mg to 70 mg, when I first pushed it to those levels. Now, I no longer have that problem. I don't know why. Was it detox? Was I taking too many other copper-blocking supplements just to be safe, and that was continuing to block my copper? Was it dehydration from getting too thirsty? Was it something I just had to get past? On the other hand, optimal levels of copper help me to sprint and help me retain water so I can work out for an hour and not need to take a drink. If I'm able to sprint, how bad could my lungs be? When I was copper-deficient for most of my life, I had to drink water all the time when weightlifting. I believe too much copper can also deplete vitamin C, deplete Zinc, deplete niacin, and maybe deplete several of the B vitamins. Too much copper can deplete or block iron absorption, and without iron, anemia develops, which has a symptom of getting out of breath, exhausted easily, and tired easily. But copper also fixes anemia, and there is such a thing as "copper deficiency anemia" because copper is needed to help turn iron into red blood cells in the bone marrow.

Does copper deplete iron? Deplete is perhaps the wrong word. "Utilize" might be better, as nutrients are like building blocks. The body seems to use what is available to engage in the functions that it wants to do. If the body needs both Copper and Vitamin C to do something, and if you take more copper and less vitamin C, the body may well run out of vitamin C faster than it otherwise normally would do so.

Don't get discouraged if you read that there is an antagonism or depletion effect of copper and another vitamin or mineral. There is usually a synergy as well. The synergy can lead to the depletion by way of the effect of looking at what building blocks are available.

You need to critically evaluate this book and think as you read.

As you read this book, you will become aware of various controversies around copper. Furthermore, scientific studies do not always agree with each other. There are three primary things to evaluate. 1. What were the actual findings of the study? 2. What were the conclusions of the researchers? 3. What is the veracity and reasonableness of my analysis?

Those are all three entirely separate things to evaluate. And none of those three things are "facts".

Point 1 is the closest to being factual, but even study findings can be faked. So the question becomes, were the study findings repeated by several other research teams? 2. The conclusions

are not always backed up by the data, but maybe only appear to be backed up by the data. The data can also mean many other possible things that might contradict the conclusions of the researchers. 3. Is my analysis sound? Did I take into account more data than the researchers? Could I be wrong? I can be wrong, no matter how persuasive I may sound. I am not wrong merely because I disagree with others or the common opinions of the day.

Other things to take into account. What might be the bias of the researchers when they reach their conclusions? What might be my bias?

In many cases, I am making my analysis as I go. But as I go, I learn more, and my thoughts in my analysis may change. That's what you would expect in the learning process. Writing a book is both a teaching process and a learning process. I continue to learn as I try to make the book more thorough and complete. This is a big subject. I may not remember everything in the book, although I am expected to know everything in the book that I am writing. Pay attention. Note: do I contradict myself? If so, where did I go wrong, and why? What would be the reasons, or possible reasons?

In one article on copper I read, the authors did contradict themselves. They claimed copper is inflammatory. Then, they said copper was an anti-inflammatory. They appeared to not remember or reference their earlier claim. Here is the article:

The Copper Dilemma
https://www.lifeextension.com/magazine/2000/9/report_copper

First statement: "It seems that copper may heighten the inflammatory response through oxidation that may lead to atherosclerosis."

Second statement: "A deficiency may also explain why copper, which is an anti-inflammatory agent, is useful in the treatment of (RA) and other inflammatory conditions. A study showed that copper supplementation surpassed aspirin in terms of anti-inflammatory action B boasting 130% the activity of cortisone."

Here is another common subject of disagreement about copper. Is copper an oxidant or an antioxidant? Both claims are made! Is it both? What is the typical net effect? Who says which claim? What are the claims based upon? Is the science sound?

One study said that subjects who took 10 mg of copper excreted nearly all of it. The conclusion was that the body wants to excrete copper because the body treats it as a toxin. Is that the only possible conclusion? I can think of many other possible conclusions because I have read so much about copper. For example, maybe the study was too short for the copper to accumulate. Maybe the study participants had trouble absorbing the copper. Maybe the study participants did not have enough time to make more ceruloplasmin, a copper transport protein, or other copper transport proteins. Maybe the study participants did not take enough calcium or potassium which have been shown to increase the absorption of copper. Maybe the study participants were toxic with other substances, that the copper that they took then was bound to, and excretion of the copper, bound to the toxins, was the body's attempt to get rid of the other

poisons, and copper is a vital detox nutrient. Maybe the study participants were taking too many of the 40 or more other substances that block or lower copper, such as nutrients, foods, and drugs? Maybe 10 mg was flat out not enough copper to help the study participants to absorb copper. Maybe there are many other possible explanations.

Before I wrote this book, I knew that was a particular mystery that I wanted to try to explore. As I am writing this book, I was able to consider many possible alternatives. Maybe all of the possible alternatives are partly correct. Maybe some are more correct than others. And maybe there are other alternatives as well.

The final point is that at first reading, you will likely not know enough about copper to know how to fully evaluate my analysis. Upon a second, and maybe third reading of this book, you might start to find holes in my analysis, or you might come to a better analysis of the data, and find yourself compelled to write an article or two yourself. Upon taking copper, and possibly iodine as well, and getting the brain boost from taking them, you may start to become a bigger thinker, with an improved memory.

For many people, I feel compelled to say, "inventing a false accusation" does not count as analysis. I don't consider myself to be writing for those kinds of people who don't know the first thing about the entire point of arguments, which is to try to come closer and closer to the truth of things. Pointing out others who disagree with me also does not count as a rebuttal, nor as an analysis. Analysis consists of harmonizing many points of data, and evaluating the truthfulness of those data points both individually, and as a whole. A rebuttal consists of proving why something could not possibly be right. Analysis also does not consist of character assassinations.

And the final and biggest controversy about copper. Is it toxic? At what level? 2 mg? 10 mg? 188 mg? 1000 mg? 10,000 mg? 20,000 mg? 250,000 mg? Why is there such a large range? And how is one man reported to survive up to 250,000 mg of copper? That's 250 grams! That's far more than the reported 10 grams of iodine that historical high iodine advocates took. Is copper toxic at all? Or is something else going on? Is it merely detox reactions? Induced deficiencies? Can too much copper at once end up overburdening the detox organs with too much of many other toxins mobilized at once? How can a substance suddenly turn toxic over a very narrow range? Is that even possible? Is there any evidence for that?

There are other things to pay attention to about studies on copper.

Is the study on animals or humans? Animal studies are not always applicable to humans. But often, they are. Often, given a level of copper that animals can "tolerate", they will assume that humans can only tolerate 1/100th of the level. Why is that assumption made? Just for safety? Again, what about the danger of deficiency?

Is the study a correlation study, or an intervention study? Correlation does not mean causation. In a correlation study, they will attempt to measure copper in the blood, or in body tissues, and then look for correlations for disease. (They rarely attempt to study "health".) In an intervention study, they will give study participants actual copper supplements over a period of time. These are often of short duration to save time and money, and thus, have limited

application for what copper supplements will do long term. And I have never seen any study measure more than 20 mg among study participants. Almost everything above that level is only case study reports.

Another thing to consider is how many study participants were involved. Typically, the lower the number, the less useful the findings.

There seems to be a catch-22 in studies about copper. They don't want to study people taking larger amounts of copper, say, over 10-20 mg, because, in theory, they assume those amounts are dangerous. But don't they need to do such studies to actually determine if copper is dangerous?

Then there are toxicology studies. Most of the toxicological data is on instances of poisoning. Most poisonings happen around 20,000 mg. Those are the levels at which people start to die. But this showcases a wide range of between 20 mg to 20,000 mg where there is just almost no data. That's a huge range.

Finally, averages are not ideals. The "average" person might not be healthy. It is said that 70% of the American population has taken at least one prescription drug in the last year. They would not do that unless they had health problems. What if 70% of people are copper deficient? What if it's 99%? Or 99.9% deficient? Then the "average" person's copper levels would indicate copper deficiency. When you go get tested, they compare you to the average. Is that even useful?

What if the average IQ is 100. Well, it is, by definition. Does this mean a person with 130 IQ, has excess brainpower and needs to drink a lot of beer to become more normal? Averages are not always ideal. Look at athletes. They have above-average levels of strength and health, too, typically. It is rare to see an athlete at the top of their game get cancer.

I personally have taken between 10 mg to 30 mg to 70 mg of copper over the last four years. I am at the very least, a data point. My health has never been better.

As I finish writing this book, I realize I did something slightly unfair. I judged government studies done in 1993 based on what I can find today in 2021. But 1993 is the era before the internet. Of course, I have no choice but to judge them based on today's knowledge. But they did not have the benefit of today's knowledge. On the other hand, they can update their data at any time, and they acknowledged that they should do so "in the future" and they never did. So, if I prove them wrong, which I will do, the fault is with them.

TESTIMONIALS

These are from my friends on Facebook. They are real people. None of them mention having been diagnosed as copper deficient. They just decided to start taking copper at levels they thought was best for them, and all appear to just be looking to increase their own health for a variety of reasons. Most of them take many other supplements as well, which they do not always mention because I was looking for testimonials about copper.

3 mg: Laura Martin:

I am looking forward to reading your book! Your website (revealingfraud.com) is full of so much valuable information! Thank you! I took 3 mg of copper last night as an experiment. I also added betaine HCL to my daytime meal. I slept for almost 10 hours! What is amazing is, I have not slept more than 2 hours at a time without waking since I did stem cells therapy for Lyme disease in 2017. My body would wake, no matter what I've tried. I've tried a lot! I can't wait to repeat the test tonight. Thank you again for commenting about copper on Matt Backburn's post about electromagnetic fields. I would never have tried copper.

2-4 mg: Cody James:

By the way, I have been feeling much better since increasing my copper intake. I started with 2 mg. last week I upped it to 4 mg. Much fewer interruptions in my sleep. Better cognitive functioning. I'll keep you posted. Might up it again soon to like 5 or 6 mg.

So almost every day I would wake up coughing violently for like an hour. It completely stopped at 4 mg of copper.

And copper is greatly helping me sleep... Not like it knocks me out... I just don't wake up 12 times coughing.

Been waking up earlier feeling much more refreshed.

15 mg: John Ranquist:

I’m at 15 mg of copper per day now. It’s working great!

I sleep better and less; from 10 hours down to 8 1/2 hours a night. My mind is sharper and I have more energy throughout the day and I can workout longer. 20% longer in the sauna without feeling as tired as I was at 80% of the time. I was sensitive to 5 g radiation/emfs/wifi but it doesn't bother me as much now. I take 5 drops of 1 mg of copper sulfate in the morning followed by 40 mg of iodine. 5 in the afternoon and 5 before bed. Copper is the best thing I've taken by far and I've spent thousands on supplements the last couple of years. Thanks so much, I can't wait to get your book when it's released!

24-55 mg: Jeffrey T-k:

I take anywhere from 24-30 mg of copper a day. The most I have ever taken was upwards of 55 mg a day with no ill effects. Using a nutrition tracking app I noticed that typically plant food sources usually have copper at a 1:5 ratio of copper to zinc. So this is typically the ratio that I aim for. Sometimes even 1:4 or 1:3 of I feel I need it for whatever reason. In one small study I read, it was estimated that on an actual paleolithic diet our ancestors clocked in about 12 mg of copper to 40 mg of zinc. And knowing that many cultures eat animal livers regularly which can contain 100 mg+ at one meal... I've never been worried. And any issues that did arise I found were always NOT because of the copper I was taking.

Honestly, if it wasn't for copper I don't think I would be here today. At one point, before discovering it... My adrenals had essentially shut down. I had crippling fatigue. Food and water would run right through me. By the time I took just 5 mg of copper, I noticed overnight improvement. By no means was I cured but the difference was so substantial I couldn't believe it. I did more research and found that copper is incredibly safe so I slowly began to work my way up to higher dosages. By the time I got to the dose I'm at now, it helped tackle a systemic infection that I had primarily in my GI tract. Helped treat my chronic anemia. Noticed great improvements in my skin, hair, and nails. And what I liked the most was just the high-quality mental alertness and swiftness that developed. THAT was very unexpected but was a greatly appreciated side effect.

I have had health issues all my life and they are not completely gone just yet... However with copper, the other supplements I'm taking, I have noticed somewhat drastic and miraculous improvements!

Honestly, can't wait to see how far this can go within the next few months or years.

33-50 mg/day average: Jimmy Pittacus

I make and sell strong Lugol's iodine at buyiodine.com at very precise well-measured doses. So, I decided to experiment and make some very strong copper sulfate, I don't know the strength, who has time for that? Besides, better to make it than not, right? Also, I'm busy. So I put about 2-3 teaspoons of blue copper sulfate crystals into a 1 oz. dropper bottle and I began taking squirts of it. Been on this high copper now 2 months, I take it every 2-3 days. Jason and I estimate it's about 100 mg of copper in a squirt. I have to give Jason a big thank you. Good stuff. I feel so much better. I feel like kicking ass. Depression lifted. Turned my sex drive way

up. Brainpower way up. I feel like a mind reader. I got a few scabs on my skin. Could be detox. Jason and I figure it could be from low Vitamin C. Jason is kicking ass. This is prime knowledge. Copper's electrical properties work in the human body, too. It's amazing, but not surprising, that mainstream medical ignores copper!

10-70 mg: Jennifer Hommel: (my wife)

I take 30 mg (up to 70 mg when applied topically). Copper energizes me on a cellular level. It also helps detox fluoride (and I've had a lot of fluoride exposure over the years). I've been taking copper for 3+ years. I started very slowly and worked up to this level. I had a droopy left eyelid, and copper fixed that. I used to have severe adrenal fatigue, and now I work 12-hour shifts on my feet.

I also developed severe neuropathy in my feet from working on my feet all day. Copper cured that. I could not feel the bottom of my feet at all, right near the toes. As the nerves came back to life, there was a strong tingling feeling, which was somewhat painful. Jason, my husband, encouraged me to push through it. I also had neuropathy on my lower lip and jaw from a dental procedure and copper fixed that. Same thing, it started tingling and was painful at first.

I used to have heavy and horrific periods that lasted 10-14+ days and copper fixed that and now they are normal and last 3-5 days. I used to have big physical pains from PMS, and now there are very few cramping pains.

I have had a mental pattern of worrying my whole life. But in the last year that has been fading away. I just feel much less anxiety.
When I put copper on my skin, I notice I just have better days overall.

10-100 mg: Myself, Jason Hommel

For 3 years, I was at about 20-30 mg. For the last year, about 10-70 mg. While writing this book over the last 3 months, from 24-100 mg. My further testimonial is at the end of this book.

79 mg: Tim Lochhead:

I just finished making my second 4 oz homemade bottle of copper sulfate drops, as per your fabulous instructions. I probably went through the first bottle in about a month. I may or may not take 5 drops orally, but I apply quite a bit topically. It depends on what kind of training I have done - upper body or lower body or total body. I love the feeling on my skin and find it benefits my (intense) training recovery! Thank you for sharing your formula and I look forward to your Copper Tome

RE: 1182 mg per 2 oz. x 2 = 2364 mg / 30 days = 78.8 mg/day, mostly topical.

On Copper, by Donna Voetee, Lockhart, TX:

I'm a Doctor of Naturopathy and Counselor of Natural Health turned baker. In 2017, I started an

organic bakery that made real food made from the best and healthiest ingredients available. I sold organic cookies at our raw milk pickup; supplied a local coffee shop with scratch pastries; and made colorful cakes using natural food dyes like beetroot powder, activated charcoal, dragonfruit powder, turmeric, butterfly pea flowers, and spirulina. No FD&C Red #40 or Yellow #5 in my cakes!

My friend was a faithful fan of my sourdough bread. Recently he had been studying the role of copper in nutrition, and he brought me some blue-green Copper Gluconate (along with a microgram scale) to add to his bread. Of course, I had to add it to the sourdough starter and that meant all the bread was copper-enhanced. He started talking to his friends about increasing copper for their health, but bread was not shelf-stable and it was bulky. So, I started making sourdough, copper-enhanced crackers for his friends. A foodie friend and fellow gramma joined me in this venture and now we supply copper crackers to a local health store as well as our friends and neighbors.

One day a man came in and bought every package of our crackers. His pregnant wife had bought some earlier and discovered that this was the only food that helped her morning sickness. Word got around, so now mamas-to-be are good customers. People say they feel better in general. Several say their headaches are gone. Some are amazed that they are not bloated, even though there is wheat in them. Some report weight loss – and I can say that for myself, being down two sizes since I began adding copper to my baked goods.

I believe that copper is a critical key to the “magic” in the recipe, but that the sourdough itself is essential. As Dr. Weston Price taught, grains need to be fermented to neutralize certain parts of the grain that make them hard to digest. With copper feeding the micro-biome of the dough, that means the copper is even more bio-available. Getting nutrition through food, the way our Creator intended, is always going to be preferred over taking a pill.

We are truly blessed to know that we are part of the ‘copper revolution’ that is restoring the health that Big Pharma and Big Ag have taken from us for far too long. We are thankful that Jason is giving us the head knowledge to live young for a long time. You, the reader, have the heart to be part of that return to goodness and vitality because you are reading these words. Find a good sourdough cracker recipe, get some copper gluconate or whatever form you like, and start making some testimonies of your own.

CHAPTER 1: COPPER'S EFFECTS (WHAT COPPER DOES IN THE BODY)

To understand copper, we need to understand its effects, and what it actually does. It seems everyone's list is a little different, so I started making a list with the larger meta articles that list many scientific studies.

This chapter is a summary of the things that copper does for us. As far as I know, this list is far bigger than any other list I have encountered elsewhere. I am organizing the list into groups, to make it easier to add to the list. Some things end up being in several groups.

Copper has many systemic effects that benefit the entire body.

General Strength:

boosting collagen,

strengthening bones, (35% collagen) through collagen, and taking calcium out of the soft tissues and into the bones. (Vitamin K, Niacin, Silica, Magnesium, and Boron also help with taking calcium out of soft tissues and into the bones. Vitamin D hurts this process.)

building muscle, (30% collagen)

burning fat,

stopping bleeding and bruising,

reducing inflammation,

improving cell oxygenation,

boosting antioxidant enzymes.

Nerves and Brain:

1-4: Copper boosts 4 neurotransmitters: serotonin, dopamine, norepinephrine, and epinephrine (adrenaline).

5. Copper acts as a neurotransmitter itself.

6. Copper increases the re-uptake of neurotransmitters.

7. Copper increases the electrical conductivity of the fluid around the nerves.

8. Copper restores the myelin sheath, which is the fatty coating around the nerves, which greatly speeds up nerve response, and is responsible for "motor learning" and coordination, deep thinking, nerve health, and so much more.

9. Copper binds to fluoride, detoxing it, carrying it out of the body, and fluoride is a nerve toxin.

10. Copper increases blood supply in various ways, all of which are great for the nerves, which need access to a blood supply: copper clears out cholesterol, copper increases the life of red

blood cells, copper helps the body create new blood vessels, as needed, and copper is directly good for the heart, which gets stronger with more copper.

11. Copper helps the mitochondria in nerve cells make ATP for energy.

12. Copper strengthens cell walls, including the cell wall of the nucleus.

13. Copper lengthens the telomeres of the DNA, as short telomeres are a key aging sign.

14. Copper boosts DHEA, the master hormone, and therefore boosts testosterone, known for building muscle. But why does it help lifters build muscle? Because testosterone heals. Testosterone also heals the nerves in many ways.

15. Copper is needed to make and activate several copper-containing detox enzymes, one of which is SOD, which eliminates many chemical poisons, many of which are toxic to the nerves. Clearing out chemical poisons heals nerves.

Better organs:

Better bones, bone marrow, and muscles,

better brain and nervous system,

better adrenal glands on top of the kidneys,

improving kidney function,

strengthening the heart,

improving digestion,

improving the lining of the intestines,

improving liver function,

improving pancreas function,

improving thyroid function,

improving the lungs,

better skin, thicker skin, less sunburn, less wrinkles, more color in the skin, better tanning, less grey hair, less sweating,

General Energy:

makes you less tired, yet aids deeper sleep,

increased adrenaline and energy, yet, increases calm mood,

boosting energy through ATP,

increasing blood flow by clearing out excess cholesterol,

Hormones:

increasing DHEA, the master hormone that is converted into others like testosterone, and growth hormone,

helping the body make more T3 hormone from T4,

helping make both T4 and T3 hormones

more dopamine which is both a neurotransmitter and hormone,

Immune function:

making more white blood cells that function better and last longer,

killing fungus,

killing bacteria,

killing viruses.

Heart & Circulatory System:

better formed blood cells, more blood cells, curing copper deficiency induced anemia,

More neutrophils which are the most common white blood cells,

Clearing out cholesterol from the blood vessels and turning it into good healing hormones, thus improving circulation and healing,

Moving calcium from the soft tissues into the bones, improving circulation,

(Hardening of the arteries is a combination of cholesterol and calcium, copper fixes both).

Growing new capillaries, improving circulation,

Strengthening blood vessel walls (by helping make collagen, with Vitamin C),

Preventing spider and varicose veins, improving circulation,

Stopping bleeding from blood vessel walls, which are the main precursor of "cholesterol/calcium" deposits,

Preventing aneurysms, which are weakened and burst blood vessels (from better collagen),

Stronger heart, improving circulation,

Less internal blood clots from reduced Clotting factor VIII,

better blood clotting when bleeds are exposed to air,

lowers blood pressure,

and by fixing copper deficiency, improves 80 other markers of heart disease.

Other:

detoxes everything including fluoride, heavy metals, and chemical toxins,

improved iron metabolism, and reduced excess iron,

improves arthritis, osteoporosis, gout, rheumatoid arthritis, osteoarthritis,

improves lymph,

helps the body retain salt, improves overall hydration,

promotes growth,

helps metabolize sugar,

prevents many different manifestations of copper deficiency diseases,

acts as an antioxidant,

regulates gene expression,

increases antihistamines,

A later chapter focuses on copper deficiency symptoms. The two are like mirror images of each other. For example, in copper deficiency, there is a low red blood cell count. In copper sufficiency, red blood cell count is high.

The next chapters focus on proving up the summary above in the scientific research. Most of these are meta article summaries of what copper does that quote multiple studies that often look at how copper deficiency decreases the numbers and functionality of many copper-containing enzymes, and what those enzymes do, and how various diseases are a result of reduced copper and reduced copper-containing enzymes.

This is not an exhaustive list of what copper does for the human body. Many of the things listed would also improve a wide array of other things because they are systemic improvements. Better energy, nerves, brain, circulation, collagen, and hormones are going to fix many other problems.

CHAPTER 2: LINUS PAULING INSTITUTE

The Linus Pauling Institute has a paper on copper with 97 citations to scientific research.

https://lpi.oregonstate.edu/mic/minerals/copper

It's a fairly good article, both fairly mainstream, and somewhat pro-copper, and a good place to start. I'll summarize the contents here:

Copper is needed for energy production as a copper enzyme is needed to make ATP for the mitochondria in the cell. ATP gives the cells and body energy.

Copper is needed to make collagen, necessary for connective tissue formation. Almost all parts of the body require collagen. (My edit: Bones are 35% collagen. Muscles are 30% collagen. Collagen is often pitched by advertisers as a means to prevent wrinkles in the skin, but it does much more throughout the body. Copper supplements are "infinitely" cheaper and more effective than all other collagen treatments, including eating collagen. Collagen is an incomplete protein, anyway. Also, when you eat those proteins, you have to both digest them and then re-synthesize them. Copper helps both digestion and the re-synthesis and formation of new collagen. Vitamin C, and Silica, along with copper, and meat, also help form collagen.)

Copper is needed for iron metabolism, keeping iron levels in check, lowering iron, and helping turn iron into blood cells, and thus preventing anemia (low red blood cell count).

Copper is needed by the nerves, both for making neurotransmitters such as dopamine and norepinephrine, and for forming the myelin sheath around the nerves, which speeds up nerve transmission which boosts coordination. (I have a list of 15 mechanisms of action for why copper is good for the nerves.)

Copper is needed for melanin formation, which helps people tan, and gives color to hair, preventing gray hair.

(My edit: Melanin is made up of dopamine, and copper helps make dopamine, a neurotransmitter).

Copper acts as an antioxidant. Copper is needed to create both superoxide dismutase and ceruloplasmin, both of which act as antioxidants. And there is no evidence that copper creates oxidative damage, as some have speculated.

Copper regulates gene expression. Many enzymes are made in the genes, and the genes cannot make copper-containing enzymes without copper. Or, the genes do not make copper-containing enzymes very well without the presence of enough copper. (Also, often the copper-containing enzymes are more active in the presence of enough copper, whereas with mild copper deficiency, copper enzymes are the same level or amount in the body, but less active.)

Copper is needed to make white blood cells. Low white blood cell count is a classic and clinical sign of copper deficiency. Therefore, copper is needed for the immune system. People with clinically low copper get more infections.

My criticism on the Linus Pauling article:

The article's 5 authors and reviewers do not seem to be able to get past the controversies over whether copper lowers cholesterol, or whether copper, high or low, is a factor in nerve degeneration diseases such as Alzheimer's, or Parkinson's, or whether copper can cure heart disease.

The article fails to mention that copper increases hormone and thyroid production, and fails to mention cancer.

The article fails to mention fluoride entirely, but does discuss the concept of "copper toxicity" in regards to copper found in "tap water". In the USA, 70% of tap water contains fluoride.

Furthermore, while the Linus Pauling article does mention that copper is needed for "connective tissue formation" and creating collagen, it fails to mention the many conditions and symptoms that fall under that description, such as arthritis, Lupus, hemorrhoids, hernias, weak muscles, torn tendons, ruptured and bulging disks in the back, back pain, blood vessel ruptures called aneurysms, bleeding, sagging eyelids, varicose veins, wrinkles in the skin, hair loss, loss of cartilage, thin skin, thin intestinal lining, and many more.

Furthermore, to make collagen, you need vitamin C, copper, zinc, silica, plus proteins. But there are interaction effects, too. Vitamin C and Zinc can lower copper, and conversely, copper can lower Vitamin C and lower zinc.

The article does mention nutritional interaction effects, but only 4, as follows.

1. Iron: The body needs copper to transport and transform iron into red blood cells.
2. Zinc at over 50 mg/day can lower copper.
3. Fructose may lower copper, not sure.
4. Vitamin C may lower copper, but not sure. They only discuss low-dose vitamin C studies, of 605 mg and 1500 mg. A mere 1.5 g of Vitamin C lowered ceruloplasmin, a key copper transport protein.

I have noted over 40 nutrients & drugs that lower copper, and several that boost it.

The article mentions two "intervention" studies, where they give people actual copper and see what happens. But these were at levels of 2-3 mg and 3-6 mg, and only short term and little happened.

Other studies I know of suggest that even 6 mg of copper supplementation is not enough to correct a copper deficiency, so of course, little will happen.

The article discusses copper as a possible cure for osteoporosis, but I believe contains classic disinformation studies. The first more optimistic study showed people taking calcium, 2.5 mg copper, and trace minerals were able to prevent bone mineral density loss. The second study showed people taking calcium, 2 mg of copper, and 12 mg of zinc, was ineffective. It's a classic trick to use "not enough to be effective" in a study and then slander the substance. And the Linus Pauling article concludes, oh well, we need to learn more. Absolutely, they do! Quote a study that uses enough copper!

As their article shows, zinc lowers copper. The second study also removed the trace minerals, which were also part of the original study's effectiveness. And they used less copper, 2 mg, instead of 2.5 mg. As I understand it, copper, as indicated, helps the body make collagen, which forms the basis of the bone matrix. You just have to take enough to work, and with the other things that also help it work, such as Vitamin C, Zinc, silica, protein, etc. Furthermore, there are many things that increase bone mineral density, and copper is only one of them. Why study one in isolation, without adding in the other things, such as silica, boron, magnesium, Vitamin K, and Niacin? All of those 5 things, including copper, all help take calcium out of the soft tissues where it does not belong and put it into the bones.

Also, there are many toxins that cause bone mineral loss, such as aluminum, mercury, fluoride, lead, and possibly more. Why not also try chelating out and detoxing those substances when trying to heal someone, or at least, run a study on the subject. And copper, at high doses, increases metallothionein, which detoxes other heavy metals, and acts to protect against copper toxicity, showing that copper is very very safe up to extremely high levels, such as over 1000 mg in animals, as long as an adjustment time is given.

Giving people "clearly not enough" of only 1 substance that increases bone mineral density, such as copper, while neglecting at least 5 other substances that increase bone mineral density, while ignoring the removal of 4 key poisons that have been identified that cause bone mineral loss, does not prove that copper does not work to fix osteoporosis. It only proved that 2 mg in that context did not work, and tends to show that anything less than 2 mg is a deficiency level. Other people say copper is well recognized to fix osteoporosis. On the other hand, it is far easier for a person in my position to be "the quarterback after the play".

As I wrote in my first book, "Beyond the Arthritis Fix: Protocols for Strong Joints," copper is one of the best minerals for my arthritis and bone pain. Taking up to 30 mg of copper daily, along with all the other good minerals and vitamins, really strengthens my bones in my feet, and all over, and significantly reduces my bone pain, to the point where I can sprint and lift heavy weights with no pain.

There are little gems in the Linus Pauling article. This one is good:

"Drug interactions

Relatively little is known about the interaction of copper with drugs. Penicillamine is used to bind copper and enhance its elimination in Wilson's disease, a genetic disorder resulting in hepatic (liver) copper overload. Because penicillamine dramatically increases the urinary excretion of copper, individuals taking the medication for reasons other than copper overload

may have an increased copper requirement."

My first comment is that all over-the-counter pain killers lower copper, these are Tylenol, Ibuprofin, and Aspirin. All three of them cause bleeding, and cause death through bleeding. All three of them cause bleeding ulcers. The mechanism of action of causing bleeding ulcers is copper depletion of the stomach lining where the ulcer takes place.

I know these things from my studies years ago, because I have a very rare type II bleeding disorder, only about 150 people in the USA have it.

Copper also stops bleeding, which they also neglect to mention, except in the context of "connective tissue disorders from lack of collagen". Well, copper increases collagen which strengthens blood vessels so they don't bleed. Copper helps the body make stronger and longer-lasting red blood cells, which clot better. Copper also increases good clotting factors, while reducing a bad clotting factor.

Cortisol also lowers copper, as do many other medications, most of which will cause bleeding, or other copper deficiency symptoms. As you learn of copper deficiency symptoms, you will recognize that a lot of health problems are due to copper deficiency.

About half of all psych drugs contain fluoride, which blocks copper and disrupts copper metabolism. About 20-30% of all medications contain fluoride. Some antibiotics contain fluoride.

Going back to the Linus Pauling comment, they acknowledge that Penicillamine is used to deplete copper. That drug's listed side effects read like a list of copper deficiency.

https://en.wikipedia.org/wiki/Penicillamine#Adverse_effects

"Common side effects include rash, loss of appetite, nausea, diarrhea, and low blood white blood cell levels.[1] Other serious side effects include liver problems, obliterative bronchiolitis, and myasthenia gravis.[1] It is not recommended in people with lupus erythematosus.[2] Use during pregnancy may result in harm to the baby.[2] Penicillamine works by binding heavy metals; the resulting penicillamine–metal complexes are then removed from the body in the urine.[1]

"Bone marrow suppression, dysgeusia, anorexia, vomiting, and diarrhea are the most common side effects, occurring in ~20–30% of the patients treated with penicillamine.[10][11]

"Other possible adverse effects include:

Nephropathy[7][10] (Kidney disease)

Hepatotoxicity[12] (Liver disease)

Membranous glomerulonephritis[13] (Kidney disease)

Aplastic anemia (idiosyncratic)[12] (Low red and white blood cells)

Antibody-mediated myasthenia gravis[10] and Lambert–Eaton myasthenic syndrome, which

may persist even after its withdrawal (muscle weakness)

Drug-induced systemic lupus erythematosus[14] (Lupus)

Elastosis perforans serpiginosa[15]

Toxic myopathies[16] (muscle diseases)

So a drug that lowers copper, Penicillamine, creates copper deficiency symptoms. Sounds reasonable. Clearly, Wikipedia is not an exhaustive list. I suspected that the drug would also cause bleeding. Bingo. A search for "penicillamine and bleeding" hit: https://www.medicalnewstoday.com/articles/322202 "It can cause severe kidney damage, and it can affect the body's blood-clotting function, increasing the risk of bleeding. It can also increase the risk of developing an infection."

When you know what copper does, and when you know what copper deficiency looks like, it gets easy to know what to search for, to confirm what you know.

"Common side effects include upset stomach, itching skin or a rash, nausea, loss of taste, stomach pain, not feeling hungry, and diarrhea."

A rash is often a copper deficiency. Copper helps bind histamine, and zinc does better at that, too. Histamine causes rashes.

My strongest complaint about the Linus Pauling article is that their conclusion is so weak and so "mainstream":

"Linus Pauling Institute Recommendation

The RDA for copper (900 µg (mcg)/day for adults) is sufficient to prevent deficiency, but the lack of clear indicators of copper nutritional status in humans makes it difficult to determine the level of copper intake most likely to promote optimum health or prevent chronic disease. A varied diet should provide enough copper for most people. For those who are concerned that their diet may not provide adequate copper, a multivitamin/mineral supplement will generally provide at least the RDA for copper."

You may not have noticed it, but they are saying copper testing does not work. "the lack of clear indicators of copper nutritional status in humans makes it difficult..."

You will cringe when I go over how the RDA was established. It was designed to comply with a court order to determine a minimum for prisoners to provide them an adequate diet, and it fails even in that. It is nowhere near what an optimal amount would be, which they have never attempted to determine. Second, it's so weak to say it's too difficult to determine optimal copper amounts. Or why not simply say, "If you have symptoms of copper deficiency, as indicated in our article, we suggest increasing your copper supplementation." Why is that so difficult, or so radical of a concept to suggest? That's what I did. Until I got up to 30 mg. I range from about 10 mg to 70 mg a day these days, depending on how I feel. Seems rather rational to me.

I suspect the Linus Pauling Institute of bias. The bias is because Linus Pauling was an advocate

of high vitamin C consumption, up to 6 to 9 or more grams of vitamin C a day. That is considerably higher than the 1.5 grams of Vitamin C that lowered ceruloplasmin, the copper transport enzyme, as previously mentioned. It's as if they deliberately avoided studying the effects of very high vitamin C on copper.

And then, the other bias. If Linus Pauling could advocate high vitamin C, why not high copper, too?

Finally, the Linus Pauling article seems to bash copper a bit, when discussing the upper limit:

At the LP article: https://lpi.oregonstate.edu/mic/minerals/copper#safety

"There is some concern that the UL of 10 mg/day might be too high. In particular, men in a research study consumed 7.8 mg/day of copper for 147 days. They accumulated copper during that time, and some indices of immune function and antioxidant status suggested that these functions were adversely affected by the high intakes of copper (95, 96). However, another study did not report any adverse effects in individuals supplemented with 8 mg/day of copper for six months (88)."

When there is conflicting data, an examination may prove beneficial.

The actual studies cited do not show any adverse effects! That is only an interpretation. They used the word, "suggested".

https://pubmed.ncbi.nlm.nih.gov/15159234/

https://pubmed.ncbi.nlm.nih.gov/15817858/

Nobody died. Nobody had liver damage. Nobody had kidney damage. Nobody got sick. No reports of nausea. No reports of being diagnosed as "copper toxic".

The "immune function" change was minor. There is evidence that copper increases the immune system, because copper increases white blood cell count, and because copper itself kills germs on contact. Copper also boosted the antioxidant superoxide dismutase, a very good and useful copper enzyme that protects against oxidative damage, and does many other great things such as detox the body. No oxidative damage was shown, and nobody got sick. There were no harmful effects, and no symptoms were noted. There is no evidence that the researchers even asked any of the study participants how they felt taking the copper, whether they felt better or worse. Beware of false conclusions conjured up by researchers out of thin air that doesn't match the data at all. And beware of people who site studies that do not say what the citer thinks it says.

Unwarranted conclusions, bad citations, and bad restatements of bad opinions are not facts.

My warranted conclusion is that there is no valid research that shows the UL of 10 mg/day is too high. There are only people who are desperately trying to invent reasons why copper is dangerous, and don't have any evidence.

Copper is dangerous to some corporate profits if it helps sick people get healthy. And a nation of healthy people is a stronger nation with far greater overall productivity and profits.

In the Bible, God tells his people to be strong over 50 times. Copper certainly helps us fulfill that mandate, and it does so in so many, many ways.

CHAPTER 3: DCNUTRITION

One of my favorite articles on copper is from a Chiropractor and pharmacist, Dr. Winston Greene, who quotes many very important scientific studies. This is a much more "pro copper" article. As we go over these articles, there will be repetition. This is good, as this helps us learn and remember, like lines from our favorite movies.

https://www.dcnutrition.com/minerals/copper-cu/

The best things I learned from this article were that copper is needed to help convert the thyroid hormone T4 to T3. And that copper deficiency can lead to sagging eyelids. My wife had both problems, high T4 and low T3, and one sagging eyelid, which has since healed from taking copper supplements. I also recently learned elsewhere that magnesium also helps convert T4 to T3.

The article also mentions how "swayback" in animals is from copper deficiency. I noticed in myself, over the last 5 years, my back has straightened out from taking copper!

The next best thing I learned from this article is that copper helps prevent heart disease by cleaning out cholesterol. While that has never been my great concern for myself, I can see this is a very big deal for our nation, since heart disease is the number one leading cause of death. Other things that clean out cholesterol are greens, and cayenne pepper, and magnesium, things I have known about and have taken for a long time. Copper is less well known for this. Copper stops bleeding and I have read elsewhere that cholesterol accumulates in the vessels as a means to clot potential bleeds. When the vessels are stronger from collagen, there is less of a need to patch them up with cholesterol. Furthermore, copper boosts the master hormone DHEA in the adrenals, which is converted to so many other hormones in the body, including testosterone. In fact, cholesterol is a "sterol", or "steroid", just as testosterone is a steroid, and thus, the so-called "bad" cholesterol is a precursor to super good testosterone, and copper not only helps clear out the arteries and improve blood circulation but also helps build muscle and increase healing through increasing testosterone. Many other minerals and herbs can also boost testosterone, such as iodine, boron, and especially zinc. Even magnesium boosts testosterone.

There is so much in this article, I find it difficult to summarize it all, and reorganize it. This is my only complaint. But that is my task, to summarize, and put it all into easily understandable words, and to list all the things copper does in the body, listing both deficiency symptoms, and listing other interesting facts.

Quick facts from the introduction at https://www.dcnutrition.com/minerals/copper-cu/

"Copper is found in igneous rocks at 55 ppm; shale at 45 ppm; sandstone at 5 ppm; limestone 4 ppm; fresh water at 0.01 ppm; seawater at 0.003 ppm; soils at 2 to 100 ppm... marine plants 11 ppm; land plants 14 ppm; marine animals 4 to 50 ppm... land animals at 2 to 4 ppm..."

"Symptoms Associated with Copper Deficiency

White hair

Gray hair

Dry brittle hair (“steely wool” in sheep)

Ptosis (sagging tissue – eyelids, skin etc.) (sagging eyelid could be from lack of nerve conductivity)

Hernias (Congenital and acquired)

Varicose veins

Aneurysms (large artery blowouts, cerebral artery blowouts)

Kawasaki Disease (congenital aneurysms with Streptococcal infection)

Anemia (especially in vegan and high milk diets)

Hypo and hyperthyroid

Arthritis (especially where the growth plate is involved)

Ruptured vertebral disc

Liver cirrhosis

Violent behavior, blind rage, explosive outbursts, criminal behavior

Learning disabilities

Cerebral palsy and hypoplasia of the cerebellum (congenital ataxia--loss of control of body movements (dead nerves))

High blood cholesterol

Iron storage disease (abnormal iron accumulation in the liver)

Reduced glucose tolerance (low blood sugar)

Neutropenia (low neutrophils) (low white blood cells--recognized as a classic sign of copper deficiency)

Copper is essential to all living organisms and is a universally important cofactor for many hundreds of metalloenzymes.

Cerebral Palsy (characterized by lack of myelin, the fatty coating around the nerves) is from copper deficiency.

Ruptured Aneurysms are from copper deficiency. 4-6% of people die from them, and 40% of dead people have Aneurysms in development.

"The average well-nourished adult human body contains between 80 and 120 mg of copper. Concentrations are higher in the brain, liver, heart and kidneys. Bone and muscle have lower percentages of copper but contain 50 percent of the body total copper reserves because of their mass. It is of interest that the greatest concentration of copper is found in the newborn and their daily requirement is 0.08 mg/kg, toddlers require 0.04 mg/kg and adults only 0.03 mg/ kg."

"The average plasma copper for women ranges from 87 to 153 mg/dl and for men it ranges from 89 to 137 mg/dl; about 90 percent of the plasma copper is found in ceruloplasmin." Average does not necessarily mean "optimal", if, for example, the average person is copper deficient.

Copper deficiency in pregnant women results in congenital defects of the baby's heart. Kawasaki Disease and brain cerebral palsy.

Copper is needed for the cardiovascular system (heart and lungs) and to keep blood vessels strong, so they don't burst or bleed out.

Copper is needed for the skeleton and the nerves.

Copper deficiency results in anemia.

Copper strengthens the hair and fingernails and is responsible for hair color.

Low white blood cell count is an indication of copper deficiency in infants.

Infants fed only cow's milk become low in copper, and get anemia.

Menkes' syndrome is a rare copper absorption problem. They get low overall growth, strange hair and nails, loss of hair pigment, low body temperature, aneurysms (burst blood vessels), arthritis, and mental deterioration.

Pregnant women have high copper in the blood (100% more), and so do women on oral birth control, (and IUDs.)

Copper is high in the blood also during infections, liver disease, and niacin deficiency.

Copper and the Thyroid:

Copper deficiency caused high cholesterol, and low body temperature in rats. The rats also had high TSH and low T3, (a common problem in people with thyroid problems). The copper enzyme that converts T4 to T3 was low in copper-deficient rats.

That study suggests that low copper can cause hypothyroidism.

Copper, zinc, selenium, and iodine) are all needed by the thyroid for thyroid hormones.

Dr. Carl Pfeiffer thought copper was toxic, and a cause of schizophrenia. He worked for the CIA and worked with Abram Hoffer, an advocate of Niacin. I believe Abram Hoffer's bias was also against copper. I note that too much niacin at levels up to 3000 mg a day is associated with liver disease, a symptom of low copper. I believe niacin blocks copper, which I cover later. Abram Hoffer is associated with Andrew Saul, a high vitamin C advocate, and Vitamin C also lowers ceruloplasmin, and thus copper. These guys advocate "Orthomolecular medicine", a term meaning "right molecule".

https://en.wikipedia.org/wiki/Orthomolecular_medicine

Wiki says they advocate minerals, but they do not advocate copper, which is strange. Perhaps this is why their ideas are said to be not very effective.

----- continuing to summarize: https://www.dcnutrition.com/minerals/copper-cu/

The body of an adult contains 100 mg to 150 mg of copper.

Copper helps to make collagen. (Also, Vitamin C and silica help make collagen)

Copper and collagen strengthen cartilage, tendons, bones, and blood vessels. (Also muscles, and other tissues, preventing hernias and hemorrhoids, etc.)

Copper helps maintain lung tissue and prevent emphysema.

Copper insulates nerve cells by making the myelin sheath.

Copper prevents oxidative damage.

Copper helps energy production, in the mitochondria, and helps burn fat.

Copper helps make norepinephrine, both a neurotransmitter and adrenal hormone.

About 30% of dietary copper (1-3 mg) is assimilated.

"The standard American diet is copper-deficient and between 66% and 75% of the U.S. population do not consume enough copper."

Dieters, older people, and alcoholics are vulnerable to copper deficiency.

Things that increase the need for copper: "excessive dietary fiber, high zinc supplements (50 mg or more daily), cadmium, excessive vitamin C and excessive sugar (fructose) intake (at least in rats)."

Low copper intakes (copper deficiency) increase the risk of high cholesterol, heart disease, low immunity, "gout, diabetes, high blood pressure, anemia, nervous disorders, decreased pigmentation of the skin, fragile bones and erratic heartbeat." Also, "increased oxidative damage to cell membranes." Also, low norepinephrine.

"There are certain precautions to keep in mind for copper supplements. Consumption of 10 to 15 mg of copper daily can cause side effects." (I note that such side effects were not listed, so that's likey a bad opinion, or perhaps a result of a half-hearted overly quick thinker who is quickly trying to synthesize his knowledge of an upper limit established at 10 mg, with the idea that copper is toxic at some level that is likely just over that?)

"A green stain in the sink from a faucet drip, or in a teakettle, suggests excessive copper in

drinking water, leached (by fluoride!) from copper plumbing."

----- continuing to summarize: https://www.dcnutrition.com/minerals/copper-cu/

Copper Physiology

1. "Copper is required for cellular respiration, bone formation," the heart, "connective tissue development (collagen), myelination of the spinal cord (and nerves)," hair and nails, "and tissue pigmentation."

Copper does its work by helping the body make many important enzymes that require copper. With copper deficiency, these enzymes are poorly produced, and in lesser quantities (and less active).

Copper is needed to make red blood cells. Anemia develops with iron deficiency and copper deficiency (and several B vitamin deficiencies as well). Blood cells have a shorter life span with copper deficiency.

Copper helps the body both absorb and use iron. (Most people get plenty, or too much, iron in American food diets.)

2. Aortic aneurysms result from low copper which helps build collagen.

3. Copper helps convert protein into skin and hair color. Copper converts the amino acid tyrosine to tyrosinase, then dopamine, then melanin, which causes both skin and hair pigmentation, or tanning and hair color.

Copper makes keratin, needed for normal and strong hair and nails.

4. Copper is needed to make the myelin sheath around the nerves. Low copper results in brain and nerve disorders. Low copper results in low neurotransmitters (which helps nerves communicate) norepinephrine and dopamine.

5. Copper deficiency results in miscarriage. And anemia, low growth, and bleeding. From poor blood cell development and low collagen, resulting in low growth.

6. With low copper, resulting in low white blood cells, they cannot defeat candida. Other infections are also greater.

7. Copper helps digest and burn fat.

"The National Institutes of Health did a study showing that 81 percent of people have less than two-thirds of the recommended daily allowance of copper (of 0.9 mg)." "Another study revealed that hospital meals provide only 0.76 mg of copper per day, whereas people need 2-4 mg for health, and even more for healing." "A study by the Food and Drug Administration showed that, in an analysis, 234 foods that constitute the core of the American diet provided less than 80

percent of the RDA of copper." (Copper is only high in liver, a food seldom eaten.)

"So all copper studies seem to point to the majority of people being deficient."

"When we studied 228 of our patients, 165 (or 72 percent) were deficient in copper."

"So, no matter whose studies you look at over the last 20 years, there is a wealth of data showing that copper deficiency is rampant in the United States."

(The most reliable way to test if you have enough copper is to ask yourself if you eat liver several times a week, or take a lot of copper supplements. If not, you are likely low in copper. A multi-mineral or multivitamin usually has far too little copper, and too many other copper blocking minerals.)

----- continuing to summarize: https://www.dcnutrition.com/minerals/copper-cu/

Why Copper Is Needed

Copper helps the body make an enzyme that breaks down histamine. Copper is an antihistamine.

Copper helps the body make another enzyme that boosts energy.

Copper helps the body make an enzyme that detoxes and reduces chemical sensitivities.

Copper helps the body's detox pathways function.

Copper helps make the copper/zinc enzyme, SOD, which prevents aging, and arthritis. In nearly all diseases, lower SOD is found, for example, Alzheimer's and Cancer.

Detoxification

Copper boosts glutathione, a major detox enzyme.

Copper deficient rats develop liver disease and death when exposed to carbon tetrachloride. Copper sufficient rats do not.

Copper boosts mood through increasing dopamine.

Copper helps make 4 neurotransmitters: dopamine and serotonin, norepinephrine and epinephrine (adrenaline).

I note: A copper-containing enzyme, Dopamine_beta-hydroxylase, converts dopamine to norepinephrine, the direct precursor to epinephrine (adrenaline). https://en.wikipedia.org/wiki/Dopamine_beta-hydroxylase To get the final product, epinephrine, we only need methylation, which is easy. Exercise alone boosts adrenaline.

The Heart Protector

Copper protects against "arteriosclerosis, hypercholesterolemia, aneurysms (weakened or burst blood vessels), EKG abnormalities, hypercoagulable states... and sugar metabolism." Copper

helps metabolize cholesterol into hormones.

A copper enzyme (delta-9 desaturase) helps metabolize fatty acids and increases the strength of cell walls and cell nuclear membranes, and other membranes.

Zinc, molybdenum, and iron are all both complementary and antagonistic to copper. Too much copper can block all three of the others.

Copper is anti-inflammatory and is good for Lupus.

COPPER DEFICIENCY AND MULTIPLE SCLEROSIS

Lead blocks copper. Swayback in animals is a copper deficiency.

Both Swayback and MS are nerve demyelination disorders fixed by copper.

Copper salts prevented swayback from demyelination (destruction of the fatty coating around nerve cells) in animals.

Copper Deficiency Symptoms:

"anemia, neutropenia, hypopigmentation (graying) of the hair and skin, abnormal bone formation with skeletal fragility and osteoporosis, vascular abnormalities and crimped or steely hair."

There are no good ways to test copper in the body. Levels of copper in the blood, urine, hair will be depressed only in very copper-deficient people. Low SOD (superoxide dismutase) might be a better way to detect copper deficiency. (This is disputed).

Neutropenia is copper deficiency.

In the 1920s copper was found to be important for red blood cell formation. Then, also for the formation of aortic elastin in the heart.

Excess zinc, which can block copper, can lead to heart disease. (Klevay, 1975)

Note the name, Klevay, who has done a lot of research on copper deficiency leading to heart disease. I quote a few of his articles later.

Copper deficient animals end up with too much cholesterol, too much uric acid in the blood, glucose intolerance, and heart problems, connective tissue problems, and fat deposits in the arteries. Copper deficient animals may die from ruptured heart aortic walls.

In 1982, 75% of people got less than 2 mg of copper per day. Later sources show 80% of people get less than 0.7 mg copper per day and are deficient.

Tissue distribution

Copper is found and needed by most tissues in the body. It's used for cell respiration and energy. Copper is used to make connective tissues, collagen in bones (and the bone marrow), and blood vessels. Copper is used in multiple ways by the nerves. Most people only have about 80 mg of copper in their bodies. Maybe up to 120 mg. Infants may have about 6-10 times more copper in the liver than adults. (Note, in Wilson's Disease, it's 5 times as much copper in the liver). Copper (and zinc) are found in SOD, superoxide dismutase, found in red blood cells.

(Low SOD activity has been linked to lung diseases such as Acute Respiratory Distress Syndrome (ARDS) or Chronic obstructive pulmonary disease (COPD))

Copper is bound to ceruloplasmin in the blood. Ceruloplasmin helps transport both copper and iron.

Copper intake and assessment of copper status.

There are no reliable tests to determine copper deficiency.

Less than or equal to 2.6 mg Cu/d for periods of up to 42 d is not sufficient for recovery from copper deprivation.

People get less copper in the modern era due to greater consumption of processed and sugary foods. (Sugar blocks copper.)

Low copper is associated with aneurysms.

Copper deficient piglets grew smaller, but had enlarged hearts. These findings are similar to rats. Many cardiac disturbances are found among many different animals when copper is deficient.

Copper deficient rats were anemic, and exhibited a larger heart.

----- continuing to summarize: https://www.dcnutrition.com/minerals/copper-cu/

Copper? You Bet Your Heart!

Infants, fed cow's milk, which is low in copper, become malnourished.

Copper is needed for the nerves, the immune system, "as well as the lung, thyroid, pancreas, and kidney."

Copper deficiency hurts the heart and blood vessels. The heart's ability to pump blood is weakened, as the heart weakens. With copper deficiency, the heart also has less energy. Blood vessels do not dilate, or open up, with copper deficiency. This leads to high blood pressure, and the blood does not circulate as well. (In addition, blood cells themselves are weakened, and they are fewer (anemia). This further reduces blood circulation's effects. Clotting is also impaired, there is increased bleeding, and reduced ability of the body to dissolve clots.

"And finally, copper-deficient blood vessels tend to leak excessive fluid into injured tissues, thus exaggerating swelling."

(Copper is an anti-inflammatory. This is the first time I have seen a rather solid potential mechanism of action for copper reducing delayed onset muscle soreness (DOMS) after working out. As far as I know, I'm the only one who has discovered that copper reduces DOMS. Upon further reflection after having written this book, copper's power to detoxify the body, make collagen, make ATP, and help the nerves by increasing neurotransmitters, and boosting testosterone and other hormones, clear out blood vessels of cholesterol, increase red blood cells, and increase blood supply, are several other mechanisms of action that may contribute to reducing muscle soreness after workouts).

It is difficult to study copper deficiency in humans without hurting them.

The liver is the highest copper food, and people should take water-soluble copper supplements. (Copper sulfate dissolves easily in liquid, and is easily absorbed by humans.)

Copper intake and assessment of copper status.

People become deficient in copper on 1 mg of copper per day, which is above the RDA of 0.9 mg. Again, "more than 2.6 milligrams of copper per day may be needed to recover from the effects of copper deficiency."

----- continuing to summarize: https://www.dcnutrition.com/minerals/copper-cu/

Lack of a recommended dietary allowance for copper may be hazardous to your health.

Most people do not get the RDA of 1 mg of copper per day. This likely leads to irregular heartbeat, high cholesterol, and diabetes.

They believe a copper RDA of 1-3 mg is better.

Copper for Cancer.

Copper is needed to make enzymes that are required for cells to use oxygen.

Copper metabolism is disrupted in the presence of cancer.

"A reduction in tumor growth was reported (Oberley et al., 1982) when CF1 mice were injected with a single dose of Cu Zn-SOD one hour after they implanted Sarcoma 180 tumor cells."

Copper inhibits tumor growth. It might be from increasing oxygen or detoxing, or both.

(I note that copper detoxes fluoride, which is said to cause cancer, and of course, there is controversy about that, too. Copper is also antifungal, and cancer is said to be fungal, and fungal infections are very often present with cancer, and they often give anti fungal drugs to cancer

patients. Like copper, iodine and boron are also both antifungal, and both also detox fluoride!)

CHAPTER 4: UNVEILINGTHEM.COM ARTICLES

by C.A. Bouthillier c.bouthillier@cox.net

Many of his articles are offline, and only available on the internet way back machine. I hesitate to link to him, as one of the ways people get discredited is by linking to something said by someone who says other, unrelated, outlandish things. But his insights on copper deserve worth looking at, and his research backing up his insights is very complete in some areas.

Article: Poisoning of Mankind - Blood Types, Copper Deficiency, Evolution Theory & Illuminati

by C.A. Bouthillier c.bouthillier@cox.net

https://web.archive.org/web/20190321152917/http://www.unveilingthem.com/PoisoningOfMank

https://www.bibliotecapleyades.net/sociopolitica/esp_sociopol_depopu24.htm

https://www.tapatalk.com/groups/66691177999/poisoning-of-mankind-blood-types-copper-deficiency-t2333.html

https://www.evcforum.net/dm.php?control=olderthread&t=4840

For example, the first statement in his article is: "Iron is NOT a nutrient, it is a poison." Since iron is the main component of red blood cells, which keep us alive, he overstates his case and destroys his credibility. However, his research on the toxic effects of too much iron, and iron overload, which is a symptom of copper deficiency, is very good. As always, one must keep a balanced mind about things, and one needs the minerals to be in balance in the body.

Iron and Copper both antagonize each other, and they are also complementary and synergistic.

Too much iron can block copper absorption.

Too much copper can block iron absorption.

I was high iron, and low copper back in 2015, which is typical for older men. Women tend to not get into high iron trouble because they bleed more than men.

The body needs both iron and copper. The body needs copper to help turn iron into red blood cells in the bone marrow. There is such a thing as copper deficiency anemia, where the body will have plenty of iron, but without copper, too few blood cells are made. This was a medical mystery for a long time, and perhaps not everyone has yet been fully educated on this concept. The lack of quite a few B vitamins will also cause anemia, even in the presence of plenty of iron. The point is that iron and copper are also synergistic, not always antagonistic.

All that being said, the body appears to easily absorb iron from food supplies, and I think iron

rarely needs to be supplemented, and perhaps only for a few days, if needed. Even during heavy bleeding, women can replenish their iron with Vitamin C, copper, and B complex vitamins, and B12, and iron is not likely needed, since it is so abundant in meat and in the food supply. For example, Vitamin C alone will help the body absorb 300% more iron from meat. (Although I have read that Vitamin C helps the body absorb iron, I now wonder if it is true. Vitamin C at 1500 mg lowers ceruloplasmin, the transport protein that transports both iron and copper. But absorbing into the body, and transporting within the body, are different things)

The research at unveilingthem.com on the many problems, that look like copper deficiency, from high iron overload, is very complete. High iron (assumed to cause copper deficiency) leads to: "CANCER, DEMENTIA, HEART/CARDIOVASCULAR DISEASE, DIABETES, LUNG DISEASE (C.O.P.D.), GASTRO-INTESTINAL DISEASE, BLOOD DISORDERS, EYE DISEASE; to mention a few of the major problem areas."

Each of these has a long list of "high iron / copper deficiency causes" links at the following:

https://web.archive.org/web/20190404105332/http://www.unveilingthem.com/IronCausesCancer.

https://web.archive.org/web/20190312064856/http://www.unveilingthem.com/Iron_Causes_Dem

https://web.archive.org/web/20190404120313/http://www.unveilingthem.com/IronCausesHeartD

https://web.archive.org/web/20190321152917/http://www.unveilingthem.com/DiabetesHighBloo

https://web.archive.org/web/20190404103558/http://www.unveilingthem.com/IronCausesLungDi

https://web.archive.org/web/20190319200027/http://www.unveilingthem.com/IronCausesGastroI

https://web.archive.org/web/20190404125939/http://www.unveilingthem.com/IronCausesBloodD

https://web.archive.org/web/20190404133030/http://www.unveilingthem.com/IronCausesEyeDis

Each of those is well supported by studies and news. I can understand why he would overstate his case and call iron a poison. In excess, without enough copper to help the body block or excrete the extra iron, it certainly looks like iron is nothing but toxic to humans, but that overstates the case. Without iron for blood, we die.

He also believes that blood type is all about copper status, and that with proper copper everyone should be AB blood type. I rate that claim as very interesting, and as possible. Blood cells, both red and white, in copper deficiency, are malformed. He does not appear to back up his claims in this area with enough research. And I never read this anywhere else. It could be an interesting insight to try to verify.

He also has interesting ideas on blood ph. He thinks alkaline blood is toxic. And that copper, since it is acidic, is good. But this could be him looking for ways to try to justify that copper is good. As if he is looking through "copper (rose) colored glasses" so to speak.

Some of his ideas seem insane. He thinks the US population statistics are a lie, and the real US population is only 200 million. I do understand there are lies out there, but on this, I don't think so. I have seen the population increase dramatically change upwards in my lifetime. Traffic increased. Housing increased. Cities increased in size. I see no evidence that the US population figures are a lie.

He thinks healthy AB blood type people typically live to be 120 years old. But those are world records. So. He has crazy ideas. This does not invalidate all of his claims. This often happens with independent thinkers, and I've seen it before, in other areas of study.

As a comparison, the government lies. But I think they let the truth slip out by mistake oftentimes, too. And obviously, a monstrously large government is going to contradict itself, from time to time.

As for myself, I also might make that same mistake. Keep an eye out.

Next article at unveilingthem.com:

Copper: The Maligned Mineral (The many functions of copper and copper deprivation, depletion) by A.S. Gissen (different author) (1994)

71 references

https://web.archive.org/web/20190321045233/http://www.unveilingthem.com/CopperTheMalign

"In the case of zinc, numerous studies have shown that relatively small increases (50 mg) in dietary zinc significantly lowers copper absorption." "...as little as 50 milligrams a day, has also been shown to antagonize copper status in healthy adults." "Numerous cases of zinc-induced copper deficiency have been reported in scientific journals, usually resulting in anemia and blood lipid abnormalities."

"The use of supplemental vitamin C to lower copper absorption, and hasten copper deficiency, has been well documented in laboratory animals.19 It has subsequently been shown in several human studies that vitamin C supplements of as little as 1500 milligrams can adversely affect markers of copper status, including copper-zinc superoxide dismutase and ceruloplasmin activity." We saw this same study quote in the Linus Pauling article.

"...in next month's newsletter, we will continue our review of copper and nutrition, including copper [deficiency]'s role in cardiovascular disease, diabetes, arthritis, osteoporosis, free radical damage, cancer, inflammatory diseases, immune function, blood lipids, and thyroid function."

Several times now we have seen copper is good for heart disease. This should be big news. I have never seen it on the news.

"research in numerous animal models, including humans, has shown that copper deficiency can significantly increase the plasma cholesterol concentration."

"In one human study that compared heart copper levels in heart attack victims and controls that died of other causes, it was found that the hearts of people that died of myocardial infarction were low in copper."

Explaining the paradox and confusion of copper and heart disease: Why blood serum copper

may be found to be high in heart disease.

"While the role of adequate copper levels in maintaining cardiovascular health is well established, it is not entirely surprising that copper's importance has been overlooked. One of the laboratory findings often found in cardiovascular disease is increased serum levels of copper. While this may sound confusing, recent research has helped to explain this paradox. It has been suggested, for instance, that an elevated serum copper level is an independent risk factor for heart disease.29 Many researchers have considered this elevation of serum copper to play a role in the pathogenesis of cardiovascular disease, although other researchers have strongly disagreed with this hypothesis. A recent animal study, however, seems to have explained this relationship between copper levels and cardiovascular disease. This study examined the effects of diet-induced atherosclerosis on the copper levels and status of numerous tissues.30 It was found that serum copper levels increase significantly, while aorta and liver copper levels decrease significantly, in rats with experimental atherosclerosis. Instead of assuming that these elevated copper levels contribute to the formation of atherosclerosis, these researchers examined the effects of increasing the dietary copper levels in these animals. Administration of additional copper resulted in a further increase in serum copper, a significant decrease in serum cholesterol, and an increase and normalization in aorta and liver copper levels. However, instead of increasing the incidence of atherosclerosis, additional copper significantly decreased the incidence of atherosclerosis in the aorta and coronary arteries."

"Further, it has been shown that excess dietary cholesterol causes cardiovascular disease by lowering the absorption of copper, an effect that is preventable by increasing the copper level in the diet."

"It seems almost certain that copper plays a large role in the development of this killer [heart] disease, not because of its excess in the diet, but rather its deficiency."

"Almost two hundred years ago, the German physician Rademacher empirically established that broken bones healed faster when the patient was given copper supplements."

"Prolonged cortisone treatment, well known for promoting the development and accelerating the progression of osteoporosis, has been shown to increase the body's excretion of copper and lower copper status, providing more evidence of a correlation between copper status and osteoporosis."

Cortisone lowers copper. Both cortisone, and low copper, lower the immune system.

"Copper, Cancer, and Carcinogenesis

The role of copper in the development of cancer is somewhat similar to copper's role in cardiovascular disease. This is because the serum level of copper is often elevated in animals and humans with cancer.52 Like the elevation of serum copper in cardiovascular disease, it seems that the elevation of serum copper that occurs in conjunction with cancer is part of the body's biological response to cancer, rather than its cause."

"In fact, there is some experimental evidence that copper complexes can cause established tumor cells to redifferentiate into normal cells,56 and because of this it has been suggested that, "..the

future use of copper complexes to treat neoplastic diseases has some exciting possibilities."

"Because copper is an essential component of several endogenous antioxidant enzymes, and free radicals have been proposed to play a role in the process of carcinogenesis, the effects of dietary copper levels on the development of cancer has been investigated. Rats fed low copper diets show a higher incidence of carcinogen-induced colon tumors when compared with rats fed a high copper diet. 58 Another study in rats found similar results, but with the additional finding of a decrease in aortic integrity possibly leading to eventual aneurysm. 59 These findings are especially interesting for two reasons. To begin with, dietary copper has often been incorrectly suggested to be a cause or promoter of cancer. If this was true increased dietary copper would enhance, rather than inhibit, carcinogen-induced gastrointestinal malignancy. Lastly, it has been shown that there is a relationship between aortic aneurysmal disease and malignancy in humans, and this is likely the result of decreased copper status as demonstrated in the animal study mentioned above.

"Copper, Inflammation, and Arthritis

As long ago as 1000 B.C., foods high in copper and copper bracelets were thought to be beneficial in treating arthritic conditions.61 In 1945, patients with rheumatoid arthritis were shown to exhibit higher than normal serum copper levels.62 Indeed, the copper content of serum is known to be elevated above normal values in various inflammatory diseases in man and laboratory animals.63 Despite this seeming contradiction, copper complexes were successfully used from the 1940s to 1970s in the treatment of numerous conditions characterized by arthritic changes and inflammation.64 Even the time-tested copper bracelet was eventually shown to be an effective anti-inflammatory, due to the absorption of copper through the skin.65 However, the development of anti-inflammatory steroids and aspirin-like nonsteroidal anti-inflammatory drugs quickly replaced copper compounds in the treatment of these conditions. Numerous researchers have examined the paradoxical role of copper in the process of inflammation, and they have determined that the increase in serum copper is a physiological response to inflammation, rather than a promoter of it. 66 In fact, the main copper-containing enzyme, ceruloplasmin, is significantly elevated in inflammatory conditions and has anti-inflammatory activity.67 Additionally, it has been shown that copper deficiency increases the severity of experimentally-induced inflammation,68 and that dietary copper must be increased to maintain adequate copper status of animals in an inflammatory state."

In my book, "Beyond the Arthritis Fix: Protocols for Strong Joints,", I identified multiple ways copper helps arthritis. In fact, my chapter on copper was the largest in my book, at 27 pages. And my study of copper for my book led me to further investigate copper and write this book.

Copper is an anti-inflammatory.

Copper helps move calcium out of the soft tissues, and into the bones. Other things that do this: magnesium, boron, silica, Vitamin K, and Niacin.

Copper builds collagen, which strengthens the bones, muscles, and joints.

Copper detoxes fluoride, which weakens bones and joints.

Copper detoxes many other things, through the copper-containing enzymes.

Copper improves blood circulation, promoting general healing.

Copper boosts hormones, which promote general healing.

Despite the great analysis and study of copper in the article above, the summary is weak: "Total copper supplementation should not exceed 5 milligrams daily, except under a physician's supervision."

That is a very low level of supplementation.

I see this all over, that nobody should take copper at all, unless after consulting a doctor. That's not how copper works. Copper is not a medicine nor a prescription poison. Copper is available over the counter, at health food stores and online retailers.

As previously noted, aspirin is more dangerous than copper.

He also made no mention of fluoride. Nobody's perfect. What are my mistakes?

Copper: Defining the Human Requirement by A.S. Gissen (1996?)

https://web.archive.org/web/20191022021646/http://www.unveilingthem.com/CopperDefiningTh

"Apparently five weeks of almost 2.6 milligrams of copper daily (over 42 days) doesn't provide enough excess copper beyond the body's actual requirement to significantly replete copper stores."

This is good. His prior recommendation that people take 1-3 mg of copper, and no more than 5 mg, is refuted, as 2.6 mg of copper is not enough to restore copper levels after depletion for 105 days at .57 mg copper...

Next, it is known that copper helps blood to clot. But not the bad clotting kind. Coagulation factor VIII is reduced with copper. Factor VIII increases with copper deficiency. That is a bad clotting factor, causing internal blood clots.

"elevation of factor VIII activity is often seen in hypercoagulation and thrombotic disease, important risk factors for vascular disease."

"While taking aspirin to prevent abnormal blood clotting is widely practiced and recommended, adequate copper supplementation seems even more logical, beneficial, and necessary for overall cardiovascular health."

"It is already well-documented that most of us get only about 1 milligram of copper daily from our diets, well below the recommendation of up to 3 milligrams daily. In fact, subclinical copper deficiency is believed to be a common cause of illness in this country. The problem, up until now, has been proving the existence of subclinical copper deficiency in otherwise healthy human subjects."

My research for this book leads me to believe that widespread copper deficiency exists, as copper deficiency seems to play a role in so many of the top causes of death in America in the last few decades. Copper deficiency also plays a role in nearly every symptom that people go to doctors to try to treat with the top 50 drugs in America.

But once again, his conclusion falls short, and he fails to mention a level for optimal human requirements.

It should go without saying, that determining the optimal levels of copper would seem to require giving people more and more copper until all copper deficiency symptoms go away. And to do this for enough time to matter. Mineral deficiency symptoms typically take at least 3 months to begin to resolve, and sometimes a year or longer.

Next:

https://www.copper.org/publications/newsletters/innovations/2001/12/mad-cow.html

Mad Cow disease and other brain diseases may be caused by copper deficiency made worse by manganese contamination from pesticides.

"Copper supplements are routinely fed to farm animals: in cattle, to address copper deficiency in grazing fields that are high in molybdenum; in swine, as a growth stimulant; and in poultry, to prevent aortic rupture."

I note that poultry feed is also extremely high in copper blocking fluoride, at 130 ppm or 130 mg/Liter, so naturally, the fluoride would create copper deficiency symptoms that would have to be fixed by more copper.

Humans get no such beneficial treatment, not from food producers, not from governments, nor from doctors. When it comes to supplements, we are on our own.

"McBride, at Cornell University, also pointed out the potential role of copper deficiency in BSE (mad cow disease). He noted that animal protein is high in sulfur content, and that diets containing as little as 0.4% S can contribute to copper deficiency. He also pointed out that the presumed high iron content of MBM from incorporated blood also has a potential negative effect on copper availability."

Sulfur, Iron, and Manganese can contribute to copper deficiency. I note that manganese is often very high, like 10 times over the RDA, in store-bought green smoothie drinks.

Prion proteins contain copper, and act as antioxidants.

"The link between copper and prion proteins was discovered in early 1995 by Dr. Martin P. Hornshaw and his team at the MRC Neurochemical Pathology Unit, Newcastle General Hospital, in the UK."

"In simple English, prions need copper to remain "normal" and non-infective."

"Brown's laboratory tested the ability of PrP to bind other cations and found that only manganese and nickel could substitute for copper."

"He found that the brain tissue of patients with CJD (like Mad Cow) contain up to half as much copper and 10 times as much manganese as those with normal brain cells."

"a vegetarian diet, ... may contain excess levels of manganese" (green drinks)

There is also "Mn-induced Parkinsonism"

"Jackson and his colleagues at the Imperial College School of Medicine and elsewhere examined the location and properties of metal-binding sites on the human prion protein.44 They found that copper (II) ions are strongly bound to human prion protein with Ni+2, Zn+2, and Mn+2 more weakly bound by 6, 7 and 10 orders of magnitude, respectively. Human PrP is capable of binding up to five copper (II) ions per molecule. They concluded that: A role for prion protein (PrP) in copper metabolism or transport seems likely and disturbance of this function may be involved in prion-related neurotoxicity. "

"The consequences of copper deficiency were implied many years ago in a series of experiments in which it was found that the laboratory reagent, cuprizone, caused spongiform encephalopathy in rats, mice, hamsters and guinea pigs when added to their feed. Cuprizone is a powerful chelator of copper used to study the effects of copper deficiency in the central nervous system. It is also used as an analytical reagent for the detection of trace amounts of copper in wastewater."

Copper deficiency, induced by cuprizone, which chelates copper, destroys nerves in the brain!

This is a serious warning to those people who buy into the ever-more-popular theory that "copper is toxic, and must be chelated". Such people may well be destroying their ability to think. And when I read their articles, I can see it!

CHAPTER 5: WIKIPEDIA RESOURCES

I know people think it's poor form to research from an open-source place like Wikipedia, that anyone can edit. While I understand that Wikipedia's many editors have a bias in favor of mainstream medicine, and against alternative health, that is also the bias in the larger overall society in which we live. Remember, 70% of people have taken at least one pharmaceutical in the last year. Wikipedia also has more complete research than is easily found elsewhere, and articles are often well-sourced these days.

https://en.wikipedia.org/wiki/Copper_in_health

"Various factors influence copper absorption. For example, copper absorption is enhanced by ingestion of animal protein, citrate, and phosphate. Copper salts, including copper gluconate, copper acetate, or copper sulfate, are more easily absorbed than copper oxides.[25][26] Elevated levels of dietary zinc, as well as cadmium, high intakes of phytate and simple sugars (fructose, sucrose) inhibit dietary absorption of copper.[27][28][29][30][31][32] Furthermore, low levels of dietary copper inhibit iron absorption.[citation needed]"

How can low copper inhibit iron? Copper is needed to create ceruloplasmin, which transports both copper and iron.

Side note. Too little copper is bad for iron. Some copper is necessary for iron. Too much copper can block iron. It appears that mineral interaction effects are not "either/or", but rather, are more likely to be shaped like bell curves.

Wiki implicitly confirms, there is a lack of studies on copper between 500 mg and 10 mg. And, inadvertently implies that toxic effects start above 500 mg for a 100-kilo man.

"Toxic >5.0 mg/kg body weight Gastrointestinal metallothionein induced (possible differing effects of acute and chronic exposure) 100 µg/kg body weight... (10 mg for a 100-kilo man) Plateau of absorption maintained; homeostatic mechanisms regulate absorption of copper"

Even more interesting, they imply that deficiency starts at 850 mcg for a 100-kilo man, which is so very close to the 900 mcg RDA.

"Deficient...8.5 µg/kg bodyweight...Negative copper balance"

I note further that these levels would all change in the presence of copper-depleting substances. Copper deficiency was seen in a woman taking 100 mg of zinc, even at 2 mg copper, which means that 2 mg copper can also be a "deficiency level".

https://en.wikipedia.org/wiki/Copper_deficiency

https://en.wikipedia.org/wiki/Copper_toxicity

"The EPA lists no evidence for human cancer incidence connected with copper"

https://en.wikipedia.org/wiki/Copper(II)_sulfate

https://en.wikipedia.org/wiki/Category:Copper_enzymes
--when I started editing, there were 21. Now, 32. I added 11.

One of the reasons why we know what copper does in the body is by looking at copper enzymes. We know, in part, many of the things the enzymes do. And we know that the enzymes are generally more active, and sometimes there are more of the enzymes if there is enough copper to make them.

https://en.wikipedia.org/wiki/Category:Copper_enzymes

0–9

2-furoyl-CoA dehydrogenase

A

Amine oxidase (copper-containing)

AOC2

AOC3

ATPase

B

Bilirubin oxidase

C

Catalase

Catechol oxidase

Ceruloplasmin

Cytochrome c oxidase

D

Diamine oxidase

Dopamine beta-hydroxylase

G

Galactose oxidase

Glutathione peroxidase

H

Hephaestin

Hexose oxidase

I

Indole 2,3-dioxygenase

L

L-ascorbate oxidase

Laccase

Lysyl oxidase

M

Methane monooxygenase

Multicopper oxidase

N

Nitrite reductase

Nitrite reductase (NO-forming)

Nitrous-oxide reductase

P

Peptidylglycine monooxygenase

Polyphenol oxidase

Q

Quercetin 2,3-dioxygenase

S

SOD1

SOD3

Superoxide dismutase

T

Tyrosinase

https://en.wikipedia.org/wiki/Copper_protein

https://en.wikipedia.org/wiki/Category:Copper_proteins

It has been estimated that over half of proteins in the body contain copper!

https://en.wikipedia.org/wiki/List_of_copper_salts

https://en.wikipedia.org/wiki/Category:Copper_complexes

CHAPTER 6: COPPER ENZYMES

The following article has over 1300 sources:

Copper Active Sites in Biology

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4040215/

"The focus of this review is on the Cu enzymes"

The superfamily of heme-copper respiratory oxidases.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC196760/?page=1

Type-2 copper-containing enzymes

https://pubmed.ncbi.nlm.nih.gov/17876515/

"Type-2 Cu sites are found in all the major branches of life and are often involved in the catalysis of oxygen species. Four type-2 Cu protein families are selected as model systems for review: amine oxidases, Cu monooxygenases, nitrite reductase/multicopper oxidase, and CuZn superoxide dismutase."

CHAPTER 7: ALBUMIN TAKES UP IONIC COPPER

Some people claim that ionic copper is a poison. However ionic copper is easily taken up by albumin in the bloodstream. Ceruloplasmin is not the only copper-carrying enzyme in the blood.

Copper is taken up efficiently from albumin and α2-macroglobulin by cultured human cells by more than one mechanism

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2544443/

"Ionic copper entering blood plasma binds tightly to albumin and the macroglobulin transcuprein. It then goes primarily to the liver and kidney except in lactation, where a large portion goes directly to the mammary gland. Little is known about how this copper is taken up from these plasma proteins."

The liver and kidney do not just "help the body excrete toxins". They also are the location of the adrenal glands, which need copper to produce hormones and neurotransmitters, and the liver manufactures many copper enzymes.

CHAPTER 8: SWEATING & PERSPIRATION

The excretion of trace metals in human sweat

https://pubmed.ncbi.nlm.nih.gov/686643/

"sweat appears to be an important excretory pathway for zinc and copper."

Copper is used to reduce sweating (perspiration).

Copper chloride antiperspirant action

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3481878/

"Otherwise stated, this corresponds to a sweat area reduction of 84% ± 9% (std. dev.). The data for the decrease in sweating was statistically significant ($P<0.001$)." "We conclude that copper chloride dihydrate is an antiperspirant, under our experimental conditions."

A company sells a copper chloride deodorant: http://coppermedicalcompany.com/copper-based-products/

CHAPTER 9: COPPER SULFATE USED TO INDUCE VOMITING

ELEVATION OF SERUM COPPER FOLLOWING COPPER SULFATE AS AN EMETIC

https://pediatrics.aappublications.org/content/42/1/189

Copper sulfate containing 100 mg of copper was administered to 6 children. In all cases, it was successful; they vomited.

"Copper sulfate in a dose equivalent to 100 mg of copper was administered orally to six young children who came to the outpatient department because of ingestion of substances in toxic amounts."

Perhaps copper was also used because copper is a detoxifier?

Medical Uses of Copper in Antiquity

https://www.copper.org/publications/newsletters/innovations/2000/06/medicine-chest.html

"Until recently, just as in Pliny's time, the medical profession used copper sulfate as a means to clinically induce vomiting. This is based on the fact that one of the body's natural physiological responses to prevent copper intoxication is vomiting. A Manual of Pharmacology and its Applications to Therapeutics and Toxicology, published by W. B. Saunders Company in 1957 recommends the use of 0.5 gram (500 mg) of copper sulfate, dissolved in a glass of water, in a single dose, or three doses of 0.25 gram fifteen minutes apart, for this purpose."

I have read that up to 2.5 grams, or 2500 mg of copper sulfate, was used to induce vomiting by the medical establishment.

This also goes to show that copper is safe, in rather large amounts.

While they claim that the body naturally vomits copper to prevent copper intoxication, this is not the only plausible reason. I believe that the body tends to vomit excess copper because copper rapidly attracts fluoride right into the stomach and that it is the high concentration of fluoride that the body reacts to, by vomiting.

CHAPTER 10: COPPER AT 10 MG TO 20 MG DOES NOT HARM THE LIVER (OLIVARES)

Studies on taking 10 mg copper to 20 mg copper, show zero harm, specifically, no liver damage:

Supplementing Copper at the Upper Level of the Adult Dietary Recommended Intake Induces Detectable but Transient Changes in Healthy Adults (Olivares, 2005)

https://academic.oup.com/jn/article/135/10/2367/4669830

Note, they call copper at 10-20 mg "mild copper excess".

"Abstract

The health consequences of "mild copper excess" in humans are unknown. In a previous study, 2 mo of supplementation with up to 6 mg Cu/L in drinking water did not induce detectable changes. Here we assessed a copper supplement at the upper level of dietary recommendations for "healthy" adults. The study was a prospective controlled trial; participants (women and men, 18-50 y old), represented the upper and lower 5% of the ceruloplasmin distribution curve obtained from a community-based sample of 800 healthy adults (n = 41/group, each approximately 50% men). Individuals received a single daily dose of 10 mg Cu for 60 d. Before and after supplementation, blood [copper, ceruloplasmin protein, homocysteine, liver aminotranferases, Cu-Zn -superoxide dismutase activity in erythrocytes (eSOD), and glutathione in peripheral mononuclear cells] and urine [copper excretion after a 5-h administration of a chelator 2,3-dimercapto-1-propano-sodium sulfonate (DMPS)] analyses were performed. After 2 mo, liver enzyme activities remained below the clinical cutoff value used to diagnose liver dysfunction, but had increased significantly in both groups and genders. These increases were no longer present 12 mo after the copper loading period was completed. Glutathione in mononuclear cells (mmol/g of protein) also increased after the 2-mo copper loading in both groups and in both genders (P = 0.01). eSOD activity, serum homocysteine concentration, and urinary copper excretion 5 h after DMPS administration were not affected. We conclude that copper administered as described induced a transient, mild, but significant elevation of aminotransferases."

"In a previous study, 2 mo of supplementation with up to 6 mg Cu/L in drinking water did not induce detectable changes. Here we assessed a copper supplement at the upper level of dietary recommendations for “healthy” adults.

I pulled that quote out, quoting it twice, and mention it here for greater effect. 6 mg of copper for 2 months did not induce detectable changes. In other words, 6 mg is not dangerous. It's also probably not enough to get you healthy, either. If you are taking copper you are going to want "positive changes", not "no detectable changes". In other words, 6 mg of copper "does nothing".

Again, 2.6 mg of copper does not fix deficiency. 6 mg of copper "does nothing". Therefore, for

me, this confirms that people need higher levels to get good results from taking copper.

"Individuals received a single daily dose of 10 mg Cu for 60 d."

"There is scant knowledge of the early effects of chronic exposure to higher levels of copper."

"There is an anecdotal report of a 26-y-old man who required liver transplantation after self-administering 30 mg of copper daily for 30 mo and then increasing the dose to 60 mg/d for 1 y as a “performance enhancer” (7)." (I cover this "report" in detail in chapters 40-41 in this book on the "upper limit".)

"In a previous randomized, controlled, double-blind study, we exposed apparently healthy adults to up to 6 mg Cu/L of water for 2 mo; based on the daily consumption of water, this represented exposures of up to 20 mg Cu/d (1). Copper was ingested at home during the day as plain water or taken as tea, herbal infusions, or soup. Under these conditions, traditional copper biomarkers, including serum copper, serum ceruloplasmin (Cp; protein), and erythrocyte Cu-Zn superoxide dismutase total activity (eSOD) were not affected."

"DISCUSSION

Presently, the WHO/FAO/International Atomic Energy Agency and the National Academy of Science/Food and Nutrition Board DRIs for trace elements and metals are 9 and 10 mg copper/d as the tolerable UL of intake from food, water, and supplements, respectively (17). The UL is not a precise estimate of safe, chronic copper doses in humans; rather, it is based on estimates derived from usual dietary exposure multiplied by a factor of 10, considered a reasonable default value in the absence of specific dose-response evaluations."

"The main effect was a significant increase in the activities of 3 liver aminotransferases after 2 mo of controlled copper exposure with the specified dose and regimen. This increase was significant, but all enzyme activities were below the corresponding clinical cutoff values used to diagnose liver dysfunction, and participants did not exhibit symptoms or positive findings on physical examination suggestive of liver disease. "

"DMPS, given at a dose that induced a dramatic difference in urinary copper excretion between the patients with Wilson's disease and normal volunteers in the preliminary protocol, did not significantly increase urinary copper in the study participants (data not shown). The 300 mg of DMPS as a single dose is sufficient to chelate the metal when tissue concentrations are elevated, as observed in patients with Wilson's disease (24). This dose is currently recommended for individuals suspected of suffering from chronic metal toxicity (25), e.g., individuals with potential mercury toxicity due to mercury from dental fillings (26–28). In our case, we chose an oral DMPS dose that was documented to be well tolerated by individuals suspected of mercury toxicity. The low dose in addition to the rather moderate copper load given to our subjects may explain the lack of an effect of DMPS on urinary copper excretion. Alternatively, the chronic exposure to copper may have led to copper sequestration in body pools that were less accessible to the chelator."

Gastrointestinal symptoms and blood indicators of copper load in apparently healthy adults

undergoing controlled copper exposure (Olivares, 2003)

https://pubmed.ncbi.nlm.nih.gov/12600855/

"Conclusions: Gastrointestinal symptoms increased significantly in response to 6 mg Cu/L water. No detectable changes were observed in indicators of copper status, which suggests competent homeostatic regulation. The results of liver function tests remained normal in all subjects."

Title: "Nausea threshold in apparently healthy individuals who drink fluids containing graded concentrations of copper"

(OLIVARES, 2001 JUN)

https://pubmed.ncbi.nlm.nih.gov/11407930/

"Abstract

Ingestion of drinking water with a high copper content may induce acute gastrointestinal effects, mainly nausea and vomiting, rarely diarrhea and abdominal pain. The objectives of this study were to define nausea threshold in apparently healthy adult volunteers who received graded concentrations of copper and to explore how individual thresholds were modified by delivering copper in an orange-flavored drink. Sixty-one healthy subjects received 200 mL of a copper-containing solution in purified water, at concentrations 0, 2, 4, 6, 8, 10, and 12 mg/L, as copper sulfate, in random order. Nausea threshold concentration for first response was established and then this threshold was confirmed. Subsequently, following the same design, subjects received the same copper concentrations (up to 12 mg/L), delivered in an orange-flavored drink, starting at the confirmed threshold concentration found in water. Mild nausea shortly after ingestion of copper-containing water was the most frequent finding (33/61 subjects), starting at 4 mg/L; vomiting was observed in 7 individuals, starting at 6 mg/L. The NOEL for copper in purified water was 2 and 4 mg/L for nausea and vomiting, respectively. When copper was provided as an orange-flavored drink, 11 subjects (18%) reported nausea, starting at 8 mg Cu/L, and no subjects vomited up to 12 mg Cu/L. It is concluded that after consumption of copper in purified water, the NOEL is 2 mg Cu/L and the LOAEL 4 mg Cu/L for nausea, while tolerable intake is between 2 and 4 mg Cu/L in water depending on whether apparent or confirmed nausea is used as the criterion to define critical effects."

"tolerable intake is between 2 and 4 mg Cu/L in water depending on whether apparent or confirmed nausea is used as the criterion to define critical effects."

And 5-15 mg copper is safe:

Copper exposure and potential biomarkers of copper metabolism

https://pubmed.ncbi.nlm.nih.gov/12572679/

(Olivares, 2003)

"In adult healthy volunteers that had an estimated daily intake of 0.9 mg Cu/day (approximately 15 microg/kg/d), exposure to additional 50-60 microg of copper/kg/day for three months or up to 150 microg/kg/d for two months resulted in no significant changes of SOD activity in

erythrocytes, of copper concentration (in serum, erythrocytes and mononuclear cells) and of serum ceruloplasmin (ANOVA)."

5-15 mg of copper supplements a day, for a healthy 100kg person, (220 pounds) does nothing:50 mcg x 100 kg = 5 mg,

150 mcg x 100 kg = 15 mg.

CHAPTER 11: COPPER LOWERS HISTAMINE

Copper lowers histamine (so does zinc. I think zinc more powerfully lowers histamine)

Plasma Diamine Oxidase Activity Is Greater in Copper-Adequate than Copper-Marginal or Copper-Deficient Rats

https://academic.oup.com/jn/article/130/1/30/4686063

Diamine Oxidase, a copper-containing enzyme, also known as histaminase, breaks down histamine.

"What Is DAO?

Diamine oxidase (DAO) is a digestive enzyme produced in your kidneys, thymus, and the intestinal lining of your digestive tract.

Its primary function is to break down excess histamine in your body (1)."

https://www.healthline.com/nutrition/dao-supplement#what-it-is

Perhaps those who need "epi-pens" are simply low in copper and zinc?

Excess histamine often causes rashes on the skin. Copper was used historically to cure rashes on the skin.

When I first started taking high copper, over 10 mg, at about 20 mg of copper, I would start sneezing like crazy. It would not stop. It was a horrible allergic reaction to something. Very quickly, I found I could stop it almost immediately with a chewable zinc tablet. That was also very amazing. This "trouble" only lasted about 3 weeks, and then began to go away. I bravely powered through it, because I knew I had copper deficiency symptoms, and my initial research showed me copper was clearly very safe at 10 mg and at least somewhat safe at somewhat above that level.

This is why I think zinc is a stronger anti-histamine than copper. But if you take far more copper than zinc, or a lot of copper and no zinc at the same time, I think the copper can strip the histamine from the zinc, or something like that happens. I just know the solution if this ends up being a problem for you, too.

Yes, I know zinc can block copper. Some say copper cannot block zinc. But so few have tested taking copper above 10 mg, so what do they know?

CHAPTER 12: COPPER, GREAT FOR THE SKIN

Using Copper to Improve the Well-Being of the Skin

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4556990/

Copper-embedded socks, and copper-containing pillowcases, are clinically proven to work to improve the skin, including athlete's foot, and fine wrinkles.

I enjoy applying copper sulfate topically, all over my skin, a few days a week. My skin has never felt better. My skin is thicker, stronger, and has zero acne. When I first started detoxing with iodine, I had acne in my upper back. In my late 40's! It is now completely gone!

Tim, in the testimonials, said, "I love how it feels on my skin".

CHAPTER 13: COPPER.ORG: COPPER IN HUMAN HEALTH & ANTIQUITY

Copper Development Association, Inc.

Copper in Human Health

https://www.copper.org/consumers/health/cu_health_uk.html

"Copper is one of a relatively small group of metallic elements which are essential to human health. These elements, along with amino and fatty acids as well as vitamins, are required for normal metabolic processes. However, as the body cannot synthesize copper, the human diet must supply regular amounts for absorption."

"The adult body contains between 1.4 and 2.1 mg of copper per kilogramme of body weight."

"An improper balance of copper, iron, and zinc can result in poor copper status, which over time may lead to heart and circulatory problems, bone abnormalities and complications in the immune system."

"Only 25% of the US population consume the amount of copper a day estimated to be adequate by the US Food and Nutrition Board of the National Academy of Sciences."

Or, in other words, 75% of Americans get less than 0.9 mg of copper, below the poorly established, quasi fraudulent "minimum government-science, RDA" Note: Few people ever examine how the RDA was established. I will in a later chapter.

"Copper has been used as a medicine for thousands of years including the treatment of chest wounds and the purifying of drinking water. More recently, research has indicated that copper helps prevent inflammation in arthritis and similar diseases. Research is going on into anti-ulcer and anti-inflammatory medicines containing copper, and its use in radiology and for treating convulsions and epilepsy. Although there is no epidemiological evidence that copper can prevent arthritis, there have been claims that the wearing of copper bangles does alleviate the symptoms."

In my book on arthritis, I go over the many ways copper helps arthritis.

"The capacity for healthy human livers to excrete copper is considerable and it is primarily for this reason that no cases of chronic copper poisoning have been reported."

That last part should perhaps be in all caps, as follows: "NO CASES OF CHRONIC COPPER POISONING HAVE BEEN REPORTED" !!!

Medical Uses of Copper in Antiquity

https://www.copper.org/publications/newsletters/innovations/2000/06/medicine-chest.html

"Verdigris and blue vitriol (copper sulfate) were used, among other things, in remedies for eye ailments such as bloodshot eyes, inflamed or "bleary" eyes, "fat in the eyes" (trachoma?), and cataracts."

As my wife and I have increased our copper consumption during the writing of this book from 30 mg to 70 mg. I noted her eyes and mine became very white, and not bloodshot at all.

The paradox of a rise in blood copper in diseased states: Is copper a cause or cure?

"Since 1934, it has been known that individuals suffering from such diseases as scarlet fever, diphtheria, tuberculosis, arthritis, malignant tumors and lymphogranulomas exhibit an elevation of copper in their blood plasma. Since then, the list of maladies bringing about such elevation has been extended to fever, wounds, ulcers, pain, seizures, cancers, carcinogenesis, diabetes, cerebrovascular and cardiovascular diseases, and irradiation and tissue stresses, including restricted blood flow. This suggests that this redistribution of copper in the body has a general role in responding to physiological, disease, or injury stress. On the other hand, the elevation of copper in the affected organ has led some to postulate that it was this excess of copper that caused the disease. Nonetheless, this elevation of copper in diseased states is suggested to account for the natural synthesis of copper-dependent regulatory proteins and enzymes in the body required for biochemical responses to stress. It may be that these natural copper complexes expedite the relief of stress and the repair of tissues. Thus, it appears that in addition to the anti-bacterial and anti-fungal activity of inorganic copper compounds as recognized by the ancients, metallo-organic complexes of copper have medicinal capabilities that are fundamental to the healing process itself."

It is important to note that a rise in blood copper is often described as evidence of "copper toxicity". However, pregnant women have a 100% rise in blood copper, with no additional copper intake. Copper is required for growth, and the manufacture of hormones, and babies are naturally higher in copper. Low copper after pregnancy could explain postpartum depression. It could also be from low iodine, as babies also need iodine.

"Copper aspirinate has been shown not only to be more effective in the treatment of rheumatoid arthritis than aspirin alone, but it has been shown to prevent or even cure the ulceration of the stomach often associated with aspirin therapy."

"Ulcer and Wound-Healing Activities of Copper Complexes

It has been demonstrated that copper complexes such as copper aspirinate and copper tryptophanate, markedly increase the healing rate of ulcers and wounds."

I have experimented with putting copper sulfate on minor cuts. They heal very quickly. But I'm also healing very quickly these days in general, in part, because I have been taking a wide array of vitamins and minerals.

Seizures: "With reports of seizures in animals and humans following the protracted consumption

of copper-deficient diets, it was reasoned that copper has a role to play in the prevention of seizures. It was subsequently discovered that organic compounds that are not themselves anti-convulsants exhibit anticonvulsant activity when complexed with copper. Further, it was found that copper complexes of all anti-epileptic drugs are more effective and less toxic than their parent drugs."

"Anticancer Activities of Copper Complexes

As early as 1912, patients in Germany were treated for facial epithelioma with a mixture of copper chloride and lecithin. Success of such treatment suggested that copper compounds have anticancer activity. Work at the University of Liverpool in 1913 demonstrated that subcutaneous and intravenous injections of a copper salt or colloidal copper softened and degenerated carcinomas transplanted into mice. In 1930, work in France indicated that injections of colloidal copper mobilized and expelled tumor tissue. Recent work with mice in the USA has shown that, indeed, treatment of solid tumors with non-toxic doses of various organic complexes of copper markedly decreased tumor growth and metastasis and thus increased survival rate. These copper complexes did not kill cancer cells but caused them to revert to normal cells."

"As early as 1984, copper metallo-organic complexes have been shown to have radiation protection and radiation recovery activities."

"They are capable of causing rapid recovery of immunocompetence and recovery from radiation induced tissue changes. The mechanism of this activity appears to be tied to the ability of certain copper complexes to deactivate the superoxide, or "free," radicals liberated by ionizing radiation. In addition, since radiation has the capability of breaking the bonds of natural copper enzymes in the body, supplementing these with non-toxic doses of pharmaceutical copper complexes restores the lost tissue-repair capability. Since these complexes may also have anticarcinogenic activity, it is suggested that there would be merit in using copper complexes in the treatment of cancer and in particular, treating patients undergoing ionizing radiation therapy for their cancer, accidental exposure to radiation, and astronauts undertaking space travel."

Radiation therapy in cancer destroys the immune system. Copper builds the immune system.

(Copper mesh is used in faraday cage construction, and in the walls around MRI machines to block outside radiation.)

"Heart Disease and Copper Complexes

Numerous studies have drawn attention to the relationship between copper deficiency and heart disease. First observed in rats in 1936, this effect has now been traced to both a deficiency in copper and an imbalance in the copper-to-zinc ratio in the body. Work by Dr. L.M. Klevay at the U.S. Department of Agriculture, Human Nutrition Research Center in 1973 has led to the postulation that copper has a direct effect on the control of cholesterol. In continuing work published in 1975, he theorized that a metabolic imbalance between zinc and copper - with more emphasis on copper deficiency than zinc excess - is a major contributing factor to the etiology of coronary heart disease. Subsequent work by other investigators has shown that copper complexes also can have a valuable role in the minimization of damage to the aorta and heart muscle as oxygenated blood reperfuses into tissues following myocardial infarction. This action is based on

the anti-inflammatory action of copper complexes. These and other studies suggest the use of copper dietary supplements as a means of preventing and controlling such diseases as atherosclerosis (a form of arteriosclerosis), coronary heart disease, aortic aneurysms and myocardial infarction. It has been speculated that the reason that the heart attack rate in France is lower than in the rest of Europe is because of the French practice of drinking red wine. Red wine has a higher copper content than white wine because it is prepared with the skin of the grape intact. The copper originates in the wine from the copper fungicides used on the grapes in the field. (See also Copper? You Bet Your Heart!)"

Unfortunately, in America, many grape growers use fluoride-based antifungals on their grapes, which shows up in the content of wines, in raisins, and grape juice.

"Based on an abundance of historical data such as the foregoing, many researchers anticipate that copper will become an increasingly important component of tomorrow's medical treatments."

CHAPTER 14: COPPER, A HISTORIC CURE-ALL

Copper was regarded as a cure-all in 1841 by Johann Gottfried Rademacher. It was listed as a "universal medicinal product" that can "eliminate most forms of disease".

https://de.zxc.wiki/wiki/Johann_Gottfried_Rademacher

(born August 4, 1772 in Hamm in the county of Mark, † February 9, 1850 in Goch)

(1.) Universal medicinal products - these are those that can eliminate most forms of disease. They are of mineral origin, such as copper, iron and cubes of saltpeter.

Unfortunately, his book is over 900 pages, volume 1, and is all in German.

This refutes the many people who claim that copper for human health was "discovered" in dates that often range from 1920 to 1950.

Next article: This miraculous metal could cure all that ails

https://www.mdlinx.com/article/this-miraculous-metal-could-cure-all-that-ails/2TtZA1xHx0vGSbFBAAk2Tr

"In Ancient Egypt, the metal was used to sanitize drinking water and treat chest wounds, as well as other infections, scalds, and itching. Recently, the use of copper containers for drinking has been revisited as a low-cost way to fight infections in developing countries."

"In Ancient Greece, copper was used in wound dressings, particularly for leg ulcers. Dry copper was sprinkled into the dressings of fresh wounds to prevent infections."

"The Romans used copper to treat venereal diseases and non-healing chronic ulcers."

Copper for ulcers is mentioned in two ancient societies, Greece and Romans. Today, we know of many actual mechanisms of action for why copper would heal ulcers. 1. Copper stops bleeding. 2. Non-healing leg ulcers are associated with diabetes, and copper is good for diabetics. 3. Copper promotes growth. 4. Copper kills infections. 5. Copper is needed for collagen formation.

"In the 19th and 20th centuries, inorganic copper preparations were used to treat chronic adenitis, impetigo, eczema, tuberculosis, syphilis, lupus, and more. Its use continued until 1932 when antibiotics were made commercially available."

In other words, copper is an effective antibiotic, and so much more!

I note, like colloidal silver and iodine, copper also was abandoned as an antibiotic with the rise of fluoride and fungal-based prescription antibiotics. I prefer to use silver, iodine, and copper, rather than fluoride or fungus. And not too shockingly, I have not needed any prescription antibiotics since I started using the minerals!

Copper: An Ancient Remedy That Actually Works

http://blog.eoscu.com/blog/copper-an-ancient-remedy-that-actually-works

"A natural material that has enjoyed long use in medicine and health is copper. Copper, in various forms, is finding renewed interest in the last decades for its biocidal properties. Without knowing why it was effective, ancient Egyptians and Greeks used copper powder in wound care and to cure eye infections. We now understand that copper has very effective antibacterial properties, killing bacteria through oxidation. Interestingly, another ancient use of copper was to help control seizures. Today, we know that there is a connection between copper deficiency and seizures, especially in patients with Wilson's disease. There are even new antibiotics being studied that use copper, which makes sense when you consider our own immune system uses copper in the same way."

Using Copper to Improve the Well-Being of the Skin

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4556990/

Key quote: “the ancient Chinese culture (~3000 B.C. TO 1100 A.D.), who used copper (sulfate or sulfide) for topical treatment of skin and eye diseases and also for treatment of systemic infections by oral administration of copper; the Mayan, Aztec, and Inca cultures (~600 B.C. TO 1500 A.D.), who used gauzes soaked in a copper sulfate solution to ‘‘disinfect’’ surgical wounds afflicted during widely practiced drilling of a hole in the skull as a physical, mental, or spiritual treatment, with estimated survival rates above 50%;”

"the ancient Roman culture (~600 B.C. TO 476 A.D.), who used various copper compounds for the treatment of eye and skin diseases, inflammation of the tonsils, hemorrhoids and generally wound treatment".

After reading so much about copper in history, I considered what the Bible had to say.

In the Bible, a large copper/brass bowl, or bath, 15 feet wide, 7 feet deep, was used in the Temple by the priests to wash or baptize.

The command to make it:

"Thou shalt also make a laver of brass, and his foot also of brass, to wash withal: and thou shalt put it between the tabernacle of the congregation and the altar, and thou shalt put water therein." --Exodus 30:18

Solomon building it:

"And he made a molten sea, ten cubits from the one brim to the other: it was round all about, and his height was five cubits: and a line of thirty cubits did compass it round about." -- 1 Kings 7:23-26

The Babylonians destroying the brasen (brass) sea:

"Also the pillars of brass that were in the house of the Lord, and the bases, and the brasen sea that was in the house of the Lord, the Chaldeans brake, and carried all the brass of them to Babylon." -- Jeremiah 52:17

The "Molten Sea" described and pictured in wikipedia:

https://en.wikipedia.org/wiki/Molten_Sea

People continue to make bathtubs out of copper today, typically costing thousands of dollars. I estimate the copper bath that Solomon built would cost about half a million dollars worth of copper today.

CHAPTER 15: COPPER: ETYMOLOGY & SYMBOLS

The origin of the English word copper is from the Latin, Cyprus. The island of Cyprus was a source of copper for the Romans.

The Egyptian Ankh was also said to be a symbol for copper. Its meaning was also "eternal life".

https://copperalliance.eu/about-copper/copper-facts/

"The Egyptians used the ankh symbol to denote copper in their system of hieroglyphs. It also represented eternal life."

Coincidence? I think not. The Ankh was also associated with the pineal gland. Today, we now know that copper helps keep calcium in the bones and out of the soft tissues, like the pineal gland. And copper also detoxes fluoride. Fluoride is said to bond with calcium to calcify the pineal gland. So copper would be essential for the health of the pineal gland in at least two ways, by keeping both fluoride and calcium out of it. The other is that the pineal gland is made up of nerves in the brain, and copper is essential for the health of nerves.

The Greek Goddess Aphrodite was said to be from Cyprus, where copper was mined. She symbolizes copper. She is the goddess of love, beauty, and procreation. Copper is good for all of that. We get the term aphrodisiac from Aphrodite. An aphrodisiac is a love potion. Copper, scientifically, is an aphrodisiac in many ways. Boosting nerves. Boosting hormones. Boosting dopamine. And copper improves circulation and strengthens the heart.

Copper is found in the green mineral called malachite, used for healing, and as an ore of copper.

The following blogs on the symbolism of malachite are rather amazing. They pinpoint many of the scientific healing properties of copper, contained within malachite and its healing legends. Note, people would use powdered malachite to heal many things.

https://tinyrituals.co/blogs/tiny-rituals/malachite-meaning-healing-properties

"A guardian of the heart, a healer of broken bones and blood pressure, and a protector from the toxic flow of negative energy – Malachite is a busy stone. Green color gemstones always seem to have super strength powers and love connecting to the heart chakra. Malachite is no exception, and with its energetic properties, it does an amazing job in encouraging you to let go of old traumas and patterns and to step outside your comfort zone."

"It’s a stone known to keep blood pressure on the down low and its calming nature certainly helps this. Malachite also works in harmony with the bones, encouraging quick healing for broken bones, torn muscles, and problems with the joints."

"Thanks to its strong feminine energy, Malachite is also a stone that lends a hand to period problems like menstrual cramps and making the body flow in better harmony when it comes to labor pains. It has earnt its other name as the Midwife Stone."

"Malachite is an amazing stone at helping diminish fears, not just in an emotional way but also in helping the body deal with the pounding heart and sweats that can accompany resistance to change and phobias. This is perhaps how Malachite also earnt its reputation as being a talisman for travelers, particularly those who fear to step on airplanes or who suffer from travel sickness."

https://www.firemountaingems.com/resources/encyclobeadia/gem-notes/gmstnprprtsmlch

"Malachite is the essence of joy and is known as the "stone of transformation" because it helps reveal and heal emotional pain by absorbing the pain into itself. It is especially helpful in bringing ease during times of change and gives the insight needed for personal growth."

"Just looking at malachite's swirls, rings and intricate marbling is rejuvenating and uplifting. It can help a person get through tough transitional periods. This is a wonderful, empowering stone to wear when starting a new project or job or moving to a new home."

"Malachite has been traditionally used to ward off danger and fight illness. It has been said to protect against falling and has been wrapped over bruises and broken bones to help with tissue regeneration and healing. Malachite tends to draw negative energy and disharmony into itself. Periodically recharge your malachite's energy by placing it on a clear quartz cluster, then rinse with cool, clean water."

"Overall, malachite is said to bring harmony into one's life. Wearing it can assist in the manifestation of the heart's desire and strengthen intuition."

https://www.gemselect.com/other-info/malachite-meaning-power-uses.php

"The Physical Benefits of Malachite

Another nickname for Malachite in addition to the Stone of Transformation is ‘The Midwife’s Stone’. It has been a well known aid for ailments specific to women for centuries – easing the pains of childbirth, regulating menstruation, relieving menstrual cramps, increasing fertility and calming the emotions during PMS."

"Some of Malachite’s other attributes include lowering blood pressure, sore joints, arthritis, rheumatism, myalgia and liver issues. It can boost the immune system and help with malaria, asthma and stomach ailments."

My comments: How would they know all of that without looking at the science of what copper does? The myths and legends about what malachite/copper does for the body appear to be very accurate and in sync with what modern and accurate science has to say about copper.

CHAPTER 16: COPPER DOES WHAT OTHER VITAMINS AND MINERALS DO.

As I was compiling this list, I began to have an insight. Copper does nearly every main function of every other vitamin and mineral. Let's look quickly at the list.

Vitamin A. Said to be good for the eyes. Copper is also good for the eyes.

B Vitamins. Said to be good for energy and anemia. Copper is also good for energy and anemia.

Vitamin C. Said to be good for collagen formation, general detoxing, germ-killing. Copper does all three.

Vitamin D. Said to be good to help absorb calcium. But it does not. Actually, copper helps put calcium into the bones, and copper goes into the bones, and the marrow, to help red blood cells form.

Vitamin K. Said to be good to help blood clot. Copper is also good for blood clotting. In fact, copper prevents internal clots; thrombosis.

What about other minerals?

Iodine. Said to be good for detoxing fluoride, good for the nerves and brain. Copper does all of that.

Boron. Said to be good for the bones and arthritis. Copper is probably better at both.

Magnesium. Good for enzymes and energy, and preventing cramps. Copper, yes, does all that.

msm sulfur. Good for general detox, reducing inflammation. Copper does both.

Zinc. Good for infections, wound healing, boosting testosterone, binding histamine. Sleep aid. Copper does all five.

I am sure there are many functions the other vitamins and minerals do that copper does not do. I'm just quickly noting similarities.

Please do not read into my words. I do not think copper is an effective substitute for all the vitamins and minerals. The other vitamins and minerals work together with copper to do what needs to be done. A house is built with many different materials. So, too, with the body.

CHAPTER 17: MITOCHONDRIAL, IMMUNE, AND THYROID HEALTH

Copper For Mitochondrial, Immune, and Thyroid Health

BY MAHMOOD BILAL PHD, DABCC, TS(ABB), MLS(ASCP)

AUGUST 12, 2020

https://www.hormonesmatter.com/copper-for-mitochondrial-immune-and-thyroid-health/

Copper boosts ATP, energy production in the mitochondria of the cells.

Copper boosts the immune system.

Copper helps make both T4 and T3 thyroid hormones.

CHAPTER 18: COPPER INCREASES 7 FOLD IN KIDNEYS LOADED WITH MERCURY

Inorganic mercury exposure, mercury-copper interaction, and DMPS treatment in rats

https://pubmed.ncbi.nlm.nih.gov/7843122/

"Abstract"

"The aim of this study was to evaluate the efficiency of oral treatment with sodium 2,3-dimercaptopropane-1-sulfonate (DMPS) on reducing mercury deposits in rat kidney after chronic exposure to inorganic mercury. The effect on kidney copper levels was also evaluated. The results showed that after two months of exposure to 50 ppm of mercury (as mercuric chloride) the concentration of mercury in the kidney was 124 micrograms/g wet tissue. At the same time copper concentration rose from 11 to 77 micrograms/g. DMPS treatment caused 2- and almost 4-fold reduction of mercury and copper, respectively. This study demonstrates that chronic exposure to inorganic mercury may alter metabolism of copper and that DMPS is an effective means for reduction of both mercury and copper."

I note: The study also shows that copper increased 7 times more in the kidney, even though no copper was given, because mercury was in the kidney, likely causing damage to tissues. In other words, copper increasing in the tissues was a result, not a cause of the mercury in the kidney. The mercury in the kidney is the cause of copper going there! This has dramatic implications for those who use "association" and "links" between diseased tissues, and those tissues being "high in copper" to draw false conclusions of causation, and wrongly blame copper as a causal agent of diseased tissues. Not so. The body is wisely bringing copper to the areas that need healing.

CHAPTER 19: COPPER AND ANESTHESIA, FAT BURNING, AND OVERALL IMPORTANCE.

Copper and Anesthesia: Clinical Relevance and Management of Copper Related Disorders

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3666360/

“Factors influencing absorption include chemical form of copper, competitive antagonism by other metals (zinc, iron, selenium, cadmium)”

“There are no laboratory markers that are currently accepted as early markers of copper excess [22].”

“Copper deficiency …Early recognition and replacement therapy with oral or parenteral copper may lead to reduced neurological deterioration [35].”

“Copper deficiency in the cardiovascular system can contribute to hypertension, anemia, coagulation abnormalities, and arteriosclerosis.”

“Human studies have suggested that marginal copper deficiency may lead to tachycardia, heart block, and premature ventricular beats [36].”

“6.5. Immune System

Copper deficiency is associated with neutropenia and impaired neutrophil function.”

“Copper deficiency can result in anemia” … “Red blood cell survival time is reduced in copper deficiency”

“Coagulation and fibrinolysis are both affected by copper deficiency. Clot formation is delayed”

Copper may enhance the effect of benzodiazepines (like niacin’s effect as a benzo)?

“Benzodiazepines are used for their sedative-hypnotic properties and may interact with metal ions in vivo affecting their therapeutic actions. Copper-Lorazepam complexes are biologically active, have a rapid onset, and duration more prolonged than Lorazepam itself [80].”

Lorazepam is used to treat seizures.

"Chronic copper deficiency is more relevant to the anesthetist because of anemia, immunosuppression, bleeding diathesis, and neurological deficits including myelopathy, polyneuropathy, and demyelination [85]."

Effect of dietary copper addition on lipid metabolism in rabbits

https://www.tandfonline.com/doi/full/10.1080/16546628.2017.1348866

“Our study showed dietary copper addition (5-45 mg/kg) increased body mass gain, but decreased fat and liver weights compared with those in the control group ($P < 0.05$). Copper (45 mg/kg) addition significantly increased the skeletal muscle weight, but inhibited cytoplasmic lipid accumulation in liver, skeletal muscle and adipose tissue ($P < 0.05$)."

Increased muscle, lower fat? Awesome!

Poisoning of Mankind, by C.A. Bouthillier

https://www.bibliotecapleyades.net/sociopolitica/esp_sociopol_depopu24.htm

"...it can be stated with certainty that copper is the single most important nutrient in the body. This is why copper is the target for deprivation and depletion."

CHAPTER 20: SUMMARY OF COPPER DEFICIENCY SYMPTOMS

Skin:

Excessive sweating, cold sweats. Copper is the active ingredient in some antiperspirants. Most antiperspirants use aluminum. Copper deficiency can result in intolerance to Low body temperature.

Easily sunburned. Copper is used to make melanin. Before I corrected my copper deficiency, I used to blister from the sun. After taking high copper supplements I did not get a sunburn, and I got the best tan of my life.

Difficulty tanning. Going from no tan at 10 minutes of sun, to getting sunburned at 15 minutes, and never tanning much from sun exposure.

Excessively tired after sun exposure. If the copper is "used up" to make melanin, and if you need copper for energy, then sun exposure while low in copper can make you tired. One of the first things I noticed after taking more copper is that I could get into the tanning booth, and not get tired after my typical 10 minutes in the 20-minute tanning bed.

Excessive white hair, (early greying). Melanin not only helps you to tan, but it is the color in the hair.

Loss of Skin Pigmentation (vitiligo), white spots on the skin. Vitiligo is often said to be caused by "sun damage". Copper supplements have been used to cure vitiligo. Sun exposure appears to deplete copper.

Excessive wrinkles, and thin skin. (smokers). Smokers use up their Vitamin C. Both Vitamin C and Copper are needed to make collagen to prevent wrinkles. There is no need for expensive collagen supplements or collagen injections when you can just take very cheap copper and Vitamin C supplements.

Connective tissue disorders, from lack of collagen:

Heart murmur, erratic heartbeat, abnormal electrocardiogram

Hernias

Hemorrhoids

Joint pains

Tendon pains

Back and neck pains

Weak bones

Bulging disks

Worn out cartilage

Heart disease:

"Copper deficiency may be a leading cause of ischaemic heart disease"

https://openheart.bmj.com/content/5/2/e000784

High cholesterol, high blood pressure, aortic aneurysms, bleeding, internal clotting, poor blood circulation, and up to 80 other indicators of heart disease.

Bones / Marrow / Blood:

Arthritis

Osteoporosis

Gout--an inflammatory form of arthritis

Lupus (arthritis-like disease / inflammation)

Inflammation (copper is anti-inflammatory)

Easily broken bones

Anemia, low red blood cell counts. Copper is needed to help turn iron into blood cells, in the bone marrow.

Anemia symptoms like Fainting, Tiredness, Mental fog, numbness in fingers and toes, etc.

Bleeding disorders, copper helps proper red blood cell formation for healthy blood clotting.

Excessive bruising (which is bleeding)

Low White blood cell count and increased infections.

Increased bacterial and fungal infections: Neutropenia

"Update on anemia and neutropenia in copper deficiency"

https://pubmed.ncbi.nlm.nih.gov/22080848/

Brain & Nerves:

Symptoms of low copper: nerve-tingling, numbness in fingers or toes, brain fog, various mental disorders, Alzheimer's, confusion, depression. Copper is needed to make the myelin sheath (that covers the nerves) that allows for faster nerve transmission and better reflexes, and copper also increases neurotransmitters. Other nerve disorders: Peripheral neuropathy, Multiple Sclerosis, Parkinson's, Kawasaki Disease, and brain cerebral palsy.

In extreme copper deficiency, there is numbness in the nerves and loss of feeling in the hands and/or feet, lesions on the spinal cord, and people lose the ability to walk.

Seizures can be cured with copper.

Depleting copper in mice induces Multiple Sclerosis

https://multiplesclerosisnewstoday.com/news-posts/2016/11/29/nih-grant-supports-multiple-sclerosis-study-into-copper-role-in-demyelination/

Widespread Decreases in Cerebral Copper Are Common to Parkinson's Disease Dementia and Alzheimer's Disease Dementia

https://www.frontiersin.org/articles/10.3389/fnagi.2021.641222/full (2021)

Parkinson's is a nerve disorder. Copper is great for the nerves. One of the characteristics of Parkinson's is low dopamine. Copper increases dopamine.

Swayback, curved spine, scoliosis. This appears to be a nerve and bone problem of copper deficiency.

Hormones: Symptoms of low copper, from low DHEA: low testosterone, weakness, difficulty building muscle, muscle pain, delayed onset muscle soreness (DOMS) from workouts, fibromyalgia pains, low libido.

Low Energy / More Sleep:

Copper deficiency leads to being tired all the time, and excessive napping, brain fog.

Chronic Fatigue Syndrome

Copper is needed for ATP, adrenal support, hormones, and neurotransmitters, all of which boost energy.

Copper Deficiency in Celiac Disease (Gluten intolerance)

https://journals.lww.com/jcge/Abstract/2009/02000/Copper_Deficiency_in_Celiac_Disease.12.as

Diabetes & Hypertension (high blood pressure):

https://www.ncbi.nlm.nih.gov/books/NBK225399/

"A number of disease conditions, including diabetes and hypertension, are associated with low extrahepatic-tissue copper concentrations."

Cancer. Copper has been extensively studied by giving huge amounts to animals. Copper has no cancer-causing function. Copper may help cure or prevent cancer as copper is an antifungal, and is a detoxifying agent.

CHAPTER 21: CAUSES OF COPPER DEFICIENCY

There are many different causes of copper deficiency. Some are more well recognized by the establishment. But even then, they are not well recognized by doctors. Some are well recognized in the science, but not well recognized by the establishment. Some are not well recognized by the science but are only hinted at in the science. Some I cannot find at all in the science, but I can put two and two together and can see causes of action on how copper could be blocked by some nutrients. This is potentially a very large field of study. The biggest list of things that block copper that I found from others is 10. I know there are at least 40 things that block copper, going to show the greater breadth of my studies on copper.

One man asked me to order my list in terms of which blocks copper the most. I don't know if the science is that good yet to even know the answer to that. To answer that, you would first have to know which things to look at, and to my knowledge, the size of my list is the first of its kind. Further complicating the answer, if you look at one thing, such as "iron" that blocks copper, it would be a sliding scale, depending on how much iron is involved. I tend to believe that if a thing, such as Vitamin C, blocks copper, and if you take many milligrams of the substance, then it could block copper more, but it does not always work like that. Vitamin C has an indirect copper blocking effect that starts around 1500 mg, as that much can lower ceruloplasmin, a copper-binding and transport protein. For fluoride, it takes 2 mg of copper to bind to 1 mg of fluoride, as we will see.

Further complicating the matter, you would have to compare across the list. Furthermore, drug-induced copper deficiency is not the type of thing that is generally investigated nor listed among the side effects, because the medical establishment has a view that copper deficiency is rare. So they are not looking at it.

One way to get to the question is to compare a drug's listed side effects and compare that to the general symptoms of copper deficiency. If many symptoms match, it could presumably be because it blocks copper. There are so many symptoms of copper deficiency, as we saw, that it may be likely that most drugs tend to deplete copper, as a general rule. As another general rule, most drugs do not contain copper. As another general rule, the body treats most drugs as toxins. As a further general rule, copper tends to get used up as it detoxifies things.

CHAPTER 22: TYPICAL MEDICAL LITERATURE REPORTS

The Medical Establishment rarely diagnoses mild, chronic, copper deficiency. They often recognize only acute, or "frank", or severe copper deficiency, and by then, it's often too late because the nerve damage is so severe, it might be beyond repair. So, once again, you can't trust doctors to recognize and prescribe copper. And copper is not a prescription medicine, nor should it be. You have to look out for yourself.

Causes of Severe Copper deficiency are often reported to be:

1. Infants fed cow's milk only, which is too low in copper.
2. People fed parenteral nutrition. This is the medical term for infusing a specialized form of food into a vein (intravenously).
3. People who have had gastric bypass surgery, because they absorb fewer nutrients.
4. People taking too much zinc supplements, such as over 50 mg, or using a denture cream high in zinc.

Those are "medically recognized" causes of extreme copper deficiency.

There are many more possible causes of chronic moderate copper deficiency such as the average diet.

What I find interesting, is that the medical establishment seems to know this, yet copper is not added to fortify cow's milk, nor is it added to fortify denture cream containing zinc. Furthermore, many multi-mineral supplements are now being marketed as "no copper", presumably because of the undue fear of copper toxicity.

Medical doctors tend to fail to recognize copper deficiency as a cause of many diseases that are known to be from copper deficiency.

Why? It is not their job, nor in much of their training, to know about vitamins and minerals, nor prescribe them.

While many diseases are now said to be medically and undisputedly related to copper deficiency, doctors and the media are still not advising people to take copper for heart disease, or diabetes, or just about anything.

CHAPTER 23: ATHLETES NEED MORE COPPER

Lifting weights creates a need for extra copper. I realized this because lifters complain about "central nervous system fatigue" from lifting heavy. Copper is needed for "fatigue" and for "nerves". Copper is needed by the nerves in at least 15 different ways. Lifters also often suffer from neuropathy in the hands. They blame swollen biceps, but it could be low copper.

1. Copper gets used up, and is needed for ATP production for energy.
2. Copper gets used up to make collagen, and 30% of muscle is collagen.
3. Copper is lost in sweat; up to 1 mg copper per day, which is higher than we get from food.
4. Lifting heavy means more copper is needed by the nerves.
5. Spending time in the sun or tanning booth? You need more copper to make melanin.
6. Copper is needed to make DHEA, the master hormone that is converted to testosterone. So as lifting boosts testosterone production, that uses up more copper.
7. Rapid growth can deplete copper, such as from testosterone taken as a drug.

"elevated requirements induced by rapid growth" from

Essentiality of copper in humans

https://pubmed.ncbi.nlm.nih.gov/9587135/

(chickens are also grown very rapidly by industry these days, suggesting that chicken meat is likely low copper. Chickens are also fed up to 130 ppm of fluoride by their industry as an antibiotic, which could further deplete copper from chicken meat.)

I ate 4 small pieces of chicken this week. And a day later, I got a zit, and acne is from fluoride.

As we have seen, copper is needed for red and white blood cells. I have a case report from a friend who started taking plenty more copper:

His red and white blood cell counts were then tested. They tested "high". Of course, doctors think everything "abnormal" is "pathology" or a "symptom of disease". No, he's healthy.

Athletes engage in "high altitude training", which results in a higher red blood cell count. This creates great endurance. I used to live in Mammoth Lakes, CA for a year. The elevation was over 7,881 feet. Athletes from around the world would come to Mammoth Lakes to train at altitude. The ski hill on Mammoth Mountain goes up to 11,053 feet.

https://www.wada-ama.org/en/questions-answers/blood-doping#item-596

"Blood doping is the misuse of certain techniques and/or substances to increase one's red blood cell mass, which allows the body to transport more oxygen to muscles and therefore increase

stamina and performance."

Another thing bodybuilders get is stretch marks.

I have stretch marks on my hips in both directions. First from growing tall. Second, from filling out. It is said these are from rapid growth. But babies grow more rapidly than adults do. Babies are not covered in stretch marks. Babies also have 5 times more copper than adults. I think copper could prevent stretch marks. I think this is a correlation that is too rare on both ends to find support for in the research, and I can't imagine doing a study to even study the effectiveness of this. How could it even be done? Maybe bodybuilders tend to get stretch marks when they do steroids because they get testosterone without the precursor of copper, and maybe the lifting and sweating depletes copper in so many other ways. Bodybuilders also often get enlarged hearts and tend to suffer from heart attacks, also both signs of copper deficiency.

CHAPTER 24: 45 COPPER ANTAGONISTS (SOME ARE ALSO SYNERGISTS!)

I have decided to order the list in "some kind of order". It could have been alphabetical, but that's typically useless. It could have been by category, such as minerals, then vitamins, etc. I decided to order the list from my favorite items to my least favorite items.

iodine, (may block copper through increased sweating, and up to 1 mg of copper can be lost in sweat in a day)

zinc, (blocks copper when zinc is taken above 50 mg, but usually blocks copper at 100 mg)

vitamin C, (blocks copper through lowering ceruloplasmin at 1500 mg Vitamin C)

Greens, (leafy green veggies are chelators and diuretics and absorb all minerals)

boron, (boron supplementation causes more copper to come out in the urine)

fiber, (like greens, fiber may absorb copper)

selenium, (minerals are often antagonistic to copper)

DMSO/MSM sulfur, (Sulfur is known to bind to copper, such as copper sulfate)

silica,

silver, (silver is said to displace copper, yet silver is not involved in making enzymes, but silver does kill pathogens)

molybdenum, (usually copper blocks molybdenum because most people get more copper than moly. But high moly soils can block copper in animals, by way of increasing copper excretion.)

calcium, (a big curve: low calcium seems to hinder copper's absorption. Some calcium helps. Too much calcium blocks.)

potassium, (potassium also helps absorb copper, but at perhaps high levels, it blocks copper)

phosphorous,

exercise,

sweating heavily, (Up to 1 mg of copper can be lost in sweat, more than the average person gets in a day)

drinking distilled water, (distilled water has no minerals, and acts as a mild diuretic)

sunlight, (copper may be used up in the process of converting dopamine to melanin, the color showing in a tan)

curcumin (turmeric)

niacin (Vitamin B3), (niacin binds to, and can block copper, especially if taken to excess. Copper can also block niacin.)

watermelon (glutathione),

coffee, (coffee is a diuretic, meaning it depletes minerals)

sugar, (sugar contains no minerals and fructose blocks copper)

phytate in many carbs, (phytates absorb copper in the gut, preventing you from absorbing it)

excess dietary cholesterol

stress, (I try to avoid things here, and below, on the list.) Stress can release cortisol and adrenaline, which use up copper.

iron, (competitively blocks copper's absorption)

Vitamin D supplements, (Lowers Vitamin A, needed for ceruloplasmin, a copper transport enzyme)

alcohol,

mints,

aspartame,

pain killers, (mints and painkillers both block copper)

prescription drugs & street drugs,

antacids,

tin,

cadmium,

lead,

bromine,

fluoride, and other toxins,

parasites,

Given that there are so many copper antagonists that lower or block copper, this would make it nearly impossible to study what "diets of X mg of copper" actually does. Because of so many potential cofounders, all these other things, we could expect to see a wide variety of potential outcomes. Naturally, the more copper blockers one takes or is influenced by, such as lead contamination, the more copper one would need. At one point, I was doing or taking 19 other copper antagonists simultaneously. And in the past, I had been doing several others, as well. No wonder I became copper deficient and benefitted from taking so much copper. That could, of course, possibly contribute to my bias in favor of copper.

Another factor to consider is that people who take many of the other good minerals and vitamins on the list that can block copper might not only need more copper, but might also tolerate far higher levels of copper far better than other people.

Some people mistakenly use zinc and Vitamin C to "lower toxic copper". Others, like myself, take zinc and Vitamin C because they are each good in their own right, and I take extra copper to

balance out their anti copper effects.

And another way to look at it, someone who only took copper as a supplement, and no other supplements, might need to take far less copper if they are not taking any of the other copper blocking supplements.

I apologize for the lack of proof or source for each of these on my list. Sometimes, I'm better at making lists than keeping track of my sources. In this case, I have been building my list of copper blockers for nearly 4 years. I have only intended to write this book for the last year.

Let's review some of the evidence for the copper antagonists.

Iodine:

I do not have strong proof that iodine blocks copper. Iodine can increase sweating, and copper is lost in sweat. Iodine and copper can bind together, and both are easily excreted in the urine. Some people on the high iodine protocols appear to end up with adrenal fatigue, and copper gives us energy, and copper fixed my adrenal fatigue that developed a few months after I started on iodine. I don't find it unusual that there is so little research in this area. The reason is that the high iodine movement is a very small minority of doctors and a small community. And none of the iodine doctors that I know of advocate copper, so maybe they just don't know.

Zinc:

Taking 121 mg zinc with only 2 mg copper for 5 years caused a copper deficiency.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2872358/

Yet, some zinc, at reasonable levels, increases copper absorption, as follows:

https://www.atsdr.cdc.gov/ToxProfiles/tp132.pdf

p. 71:

"Turnland et al. (1988a) found that diets low in zinc (below the dietary requirement) decreased copper absorption in humans; 48.1% of radiolabeled copper was absorbed when the diet contained 1.3 mg copper and 16.5 mg zinc (dietary requirement is 15 mg zinc), and 37.2–38.5% of radiolabelled copper was absorbed when the diet contained 1.3 mg copper and 5.5 mg zinc."

So there is a curve for absorbing copper with zinc.

At low levels of zinc, 5.5 mg, copper is less well absorbed: 37% of 1.3 mg copper

At moderate levels of zinc, 16.5 mg of zinc, copper is better absorbed: 48% of 1.3 mg copper.

At high levels of zinc, 121 mg, even 2 mg of copper leads to copper deficiency.

Other data points, these studies appear to be speaking of people taking only zinc, and no copper:

From: https://www.ncbi.nlm.nih.gov/books/NBK234931/

"Excessive Intakes and Toxicity

Acute toxicity, resulting in gastrointestinal irritation and vomiting, has been observed following the ingestion of 2 g (2000 mg) or more of zinc in the form of sulfate (Prasad, 1976). The more subtle effects of moderately elevated intakes, not uncommon in the U.S. population, are of greater concern, because they are not easily detected. Impairment of the copper status of volunteers by dietary zinc intakes of 18.5 mg (Festa et al., 1985) or 25 mg/day (Fischer et al., 1984) has been reported. Patients given zinc in quantities 10 to 30 times the RDA for several months developed hypocupremia, microcytosis, and neutropenia (Prasad et al., 1978). Zinc supplementation of healthy adults with amounts 20 times the RDA for 6 weeks resulted in the impairment of various immune responses (Chandra, 1984). Daily supplements of 80 to 150 mg caused a decline of high-density lipoproteins in serum after several weeks (Hooper et al., 1980). For these reasons, chronic ingestion of zinc supplements exceeding 15 mg/day is not recommended without adequate medical supervision."

Vitamin C:

At 1500 mg of Vitamin C, it lowers ceruloplasmin. On the other hand, whole food Vitamin C contains copper in the center, and they are both needed to make collagen. Both appear necessary to stop bleeding.

Boron:

[Use of antagonistic metals to correct copper metabolism in patients with hepatocerebral dystrophy].

https://www.semanticscholar.org/paper/%5BUse-of-antagonistic-metals-to-correct-copper-in-Mel'nichuk-Khokhlov/4156062e29b00cdba2a587c3dac6a975de08be60

"An inversely proportional relationship between the content of boron and copper in the patients' urine was discovered, the fact, that points to their competition. It is recommended to use boron compounds for removing copper from the body if this metal is accumulated in pathological quantities."

Of note, very few people supplement with boron. I do. Why? Boron helps us retain calcium and magnesium, and helps cure arthritis, and helps detox fluoride.

My article on boron:

https://revealingfraud.com/2020/06/health/how-to-get-started-taking-boron/

My boron, plus the high iodine protocol, plus my weightlifting, could explain why I slipped back into copper deficiency so quickly when I stopped taking copper, and could explain "my bias" in favor of copper. Let's either blame, or cheer, for the boron, iodine, and lifting, for my discoveries of copper!

http://npic.orst.edu/factsheets/archive/cuso4tech.html#references

"Copper absorption can be ... inhibited by phytate, zinc, iron, molybdenum, calcium, and phosphorous."

Molybdenum can block copper, but usually this effect is noted at extremely high moly levels in animals, or when a molybdenum containing drug is used to detox copper such as with Wilson's Disease. Since molybdenum supplements come in low levels, this potential danger is minimal and rare.

Copper deficiency exacerbates bile duct ligation-induced liver injury and fibrosis in rats

https://pubmed.ncbi.nlm.nih.gov/21784888/

In the study above, they induced or created copper deficiency in rats by giving them a drug, tetrathiomolybdate, at a"dose of 10 mg/kg by body weight". 10 mg/kg for a man of 100 kilos would be 1000 mg of the molybdenum-containing drug. People normally get about 0.5 mg molybdenum in the diet or less, and about 0.35 mg of molybdenum is mostly found in a serving of beans. So, molybdenum blocking copper is not usually a valid concern, unless you are on that particular drug.

Phytate: Phytic acid foods:

Grains: Such as whole wheat, oats, and rice.

Legumes: Such as black beans, pinto beans, kidney beans, soybeans, peanuts, and lentils.

Nuts and seeds: Such as walnuts, pine nuts, almonds, and sesame seeds.

Tubers: Such as potatoes, turnips, beets, and carrots.

https://en.wikipedia.org/wiki/Copper_in_health

"Elevated levels of dietary zinc, as well as cadmium, high intakes of phytate and simple sugars (fructose, sucrose) inhibit dietary absorption of copper.[27][28][29][30][31][32]"

I note: Sugar leads to lower copper and causes diabetes. Diabetes is a copper deficiency disease.

Copper absorption and bioavailability

https://academic.oup.com/ajcn/article/67/5/1054S/4666227

"Copper status in humans can deteriorate when the predominant carbohydrate in the diet is fructose (40). The extensive use of fructose-containing sweeteners in convenience foods and beverages has made this finding relevant."

"Zinc, Iron, Tin, Molybdenum" block copper.

Going sugar-free with aspartame is not the answer, as aspartame also binds to copper, and appears to block copper!

A theoretical and experimental study of calcium, iron, zinc, cadmium, and sodium ions absorption by aspartame

https://pubmed.ncbi.nlm.nih.gov/28150114/

"Experimental studies show that aspartame causes osteoporosis and some illnesses, which are similar to those of copper and calcium deficiency"

I note that aspartame also causes nerve problems associated with Parkinson's.

Neurophysiological symptoms and aspartame: What is the connection?

https://pubmed.ncbi.nlm.nih.gov/28198207/

"Aspartame (α-aspartyl-l-phenylalanine-o-methyl ester), an artificial sweetener, has been linked to behavioral and cognitive problems. Possible neurophysiological symptoms include learning problems, headache, seizure, migraines, irritable moods, anxiety, depression, and insomnia."

Cholesterol:

"Further, it has been shown that excess dietary cholesterol causes cardiovascular disease by lowering the absorption of copper, an effect that is preventable by increasing the copper level in the diet." Source: 31) L.M. Klevay, Biol Tr Elem Res 1988; 16: 51-57.

Next, antacids:

Conditioned copper deficiency due to antacids

https://academic.oup.com/nutritionreviews/article-abstract/42/9/319/1854749?redirectedFrom=PDF

A case report of TRISIBAM, 15 tablets a day, causing copper deficiency.

Severe copper deficiency due to excessive use of an antacid combined with pyloric stenosis

https://link.springer.com/article/10.1007/BF01391380

"A case of copper deficiency due to excessive use of an antacid..." "Copper deficiency disappeared after discontinuing of the antacid and beginning oral copper therapy."

Next, on Vitamin D blocking copper:

https://butternutrition.com/vitamin-d-supplement-warning/

Vitamin D lowers copper by lowering potassium and lowering ceruloplasmin, both of which are needed for copper absorption. Vitamin D also raises calcium levels too high, which can block copper.

http://www.integrativehealthcoaching.ca/vitamin-d-danger.html

“Vitamin A is necessary for the production of ceruloplasmin, a protein that binds to Copper to make it bioavailable. Unfortunately, Vitamin D lowers Vitamin A which lowers ceruloplasmin which makes copper bio-UNavailable.”

Vitamin D is bad enough for its role in suppressing copper, but the bigger problem is that it calcifies the soft tissues, causing arthritis, heart disease, and kidney calcification, and Vitamin D suppresses the immune system. And remember, copper reverses those problems, so Vitamin D could be causing those problems through the mechanism of inducing copper deficiency.

Here is my article on Vitamin D:

https://revealingfraud.com/2021/06/health/im-skeptical-of-vitamin-d/

Here is the best study proving Vitamin D is counterproductive, in that it weakens bones, and does not strengthen them.

Stopping Vitamin D increased bone calcium.

Gains in bone mineral density with resolution of vitamin D intoxication

https://pubmed.ncbi.nlm.nih.gov/9245225/

"Conclusions: Occult vitamin D intoxication was detected in patients who were using dietary supplements that contained an unadvertised high level of vitamin D. Resolution of vitamin D intoxication was associated with a rebound in bone mineral density."

Niacin: Copper binds to Niacin.

There is a copper/niacin supplement. (I believe it is vastly overpriced, and contains way too little copper.)

I felt very tired on high niacin, only 1500 mg. Copper gives us energy. But I felt that I just could not get energy from my copper, when taking that much niacin. Niacin is reported to make people tired, so it's not just me.

In discussion with Dr. Mahmood, author of a paper on copper cited in chapter 17, he suggested Niacin may block copper.

Niacin is said to make one less anxious. Copper is said to be able to make people more anxious. Although copper made me more energized, not anxious, a subtle difference.

And after these insights that niacin could block copper, I found sources that say the same thing,

Chris Kresser:

"So, these are things like vitamin B1, B3, (NIACIN) B6, folate, inositol, and choline, and those are all antagonistic to copper, and then there are some minerals that are antagonistic to copper, like zinc, of course, which we've been talking about, manganese, iron, sulfur, and molybdenum."

Another source:

"The vitamin niacin and the mineral copper are mutually antagonistic to each other as copper

deficiency can be induced by large intakes of niacin. Excess copper increases the requirements for niacin and, as mentioned above, also for vitamin C. In people suffering from pellagra, copper retention and absorption increases." From David L. Watts, Ph.D. at

https://www.traceelements.com/Docs/News%20March-April%2089.pdf

On the complementary side, both niacin and copper help us "feel good". Niacin appears to activate the reward center of the brain that runs on dopamine. Copper helps us make dopamine. Unfortunately, both copper and niacin can each induce a bit of nausea, and taken together, that can sometimes be even worse.

Curcumin:

Curcumin binds copper:

Curcumin interaction with copper and iron suggests one possible mechanism of action in Alzheimer's disease animal models

https://www.ncbi.nlm.nih.gov/pubmed/15345806

"Using spectrophotometry, we quantified curcumin affinity for copper, zinc, and iron ions. Zn2+ showed little binding, but each Cu2+ or Fe2+ ion appeared to bind at least two curcumin molecules."

Sunlight: I am only guessing that the sunlight could block copper. I believe it would help use up copper, as the body converts dopamine into melatonin in the tanning process. I often feel tired after tanning in the sun. With copper, I do not feel as tired after the sun. Copper also helps me tolerate the sun far more, I get better tanning, a darker tan, and I'm much less likely to get a sunburn.

Regarding aluminum. I am not listing aluminum as a copper antagonist, as I can find no evidence that it lowers copper.

However, it appears that aluminum is more toxic during copper deficiency and that copper acts as a protective mechanism against aluminum toxicity.

Protective effects of copper against aluminum toxicity on acetylcholinesterase and catecholamine contents of different regions of rat's brain

https://pubmed.ncbi.nlm.nih.gov/23354609/

"In overall, it has been found that copper may have a protective-like ability to hinder aluminum toxicity in the brain."

https://pubmed.ncbi.nlm.nih.gov/2109985/

" It was found that aluminum accumulated in the pituitary glands and testes when dietary copper levels were suboptimal."

Aluminum is found in increased amounts in the brains of Autistic children. See Chris Exley's work:

Aluminium in human brain tissue from donors without neurodegenerative disease: A comparison with Alzheimer's disease, multiple sclerosis and autism

https://www.nature.com/articles/s41598-020-64734-6

Copper is also higher in the brains of the Autistic and those with Alzheimer's. Due to the political climate around vaccines, and this particular controversy in Autism, I was planning on not mentioning Autism at all in this book. However, after having written most of the book at this time, and finding this aluminum/copper connection, it could explain why there is more copper in the brains of those with Autism as well, as the body might be putting copper there on purpose as a reaction to help detoxify the high aluminum.

I found a similar kind of effect noted by researchers of mercury and copper in the kidney. When adding mercury to animals, copper levels in the kidney rose 7 times higher, without the addition of any copper at all!

Next, bromide may lower copper. Bromide at least binds with copper, as do the other halides, fluoride, iodide, and chloride.

Does copper both increase and decrease copper? Copper blocks copper absorption, and copper assists copper absorption. How are both of these states possible?

It is said that taking copper will increase both ceruloplasmin and metallothionein, copper transport proteins. This would increase copper, over time. But it takes time for the body to make more of those proteins, perhaps from a month or two. Some studies show taking copper increases ceruloplasmin, others see no effect.

On the other hand, when copper intake increases from about 1 mg to 10 mg, copper absorption does not go up 10 fold, instead it only doubles. But this has only been studied in the short term. They don't know what happens in the long term. Perhaps in the long term, we can absorb more copper, from taking more copper, after we make more copper transport proteins.

Oh yes, one final note. I lost the source, I apologize... but copper deficiency over several generations appears to reduce the ability of the rat to absorb and use copper. At first, I thought this was extremely discouraging, which is why I lost the source. A day later, I realized the flip side. This also may explain why we might all need more copper than humans historically needed, given it has now been several generations of humans who have been copper deprived through depleted food, extra iron, and fluoridated water. My father and his father were alcoholics, and I battled that as well. And alcohol depletes copper, among all these other things we cannot avoid.

And maybe, this reduced ability to absorb copper is simply one of those things that takes time to fix. Studies are often done over a far too short of a duration. And it's only a reduced ability, not zero ability.

CHAPTER 25: PARASITES CAUSE LOWER COPPER

The effect of gastrointestinal parasitism on blood copper and hemoglobin levels in sheep

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1259146/

"Copper was administered intramuscularly to parasite infected and noninfected animals. The results showed that parasitism has a depressing effect on blood copper and Hb levels, even when administered parenterally. It is concluded that parasitism can aggravate existing hypocupremia and possibly influence the expression of swayback disease." (Swayback is typical of copper deficiency in sheep.)

Conversely, copper is used to kill worms/parasites:

https://en.wikipedia.org/wiki/Copper(II)_sulfate#Niche_uses

Copper sulfate is used as a molluscicide to treat bilharzia in tropical countries.[27]

https://inchem.org/documents/ukpids/ukpids/ukpid56.htm

"In veterinary practice it is used as an anthelmintic (dewormer), emetic and fungicide and for treating copper deficiency in ruminants.

(MERCK, 1996; DOSE, 1993)"

CHAPTER 26: IRON LOWERS COPPER AND COPPER LOWERS IRON

Iron overload can induce mild copper deficiency

https://www.sciencedirect.com/science/article/abs/pii/S0946672X01800092

High-Iron Consumption Impairs Growth and Causes Copper-Deficiency Anemia in Weanling Sprague-Dawley Rats

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4990348/

And copper lowers iron:

Copper supplementation reverses dietary iron overload-induced pathologies in mice

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6467079/

The obvious question. If excess iron causes copper deficiency, does it lead to neuropathy or the other conditions associated with copper deficiency? Yes. As we will see.

CHAPTER 27: HIGH IRON CAUSES NEUROPATHY

Neurotoxic effects of iron overload under high glucose concentration

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4146010/

"Iron overload can lead to cytotoxicity, and it is a risk factor for diabetic peripheral neuropathy. However, the underlying mechanism remains unclear."

Well, let me clarify. Iron blocks copper. And copper is needed by the nerves!

Iron Homeostasis in Peripheral Nervous System, Still a Black Box? 2014

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4085993/

"Advances: During the past years, much effort has been paid to understand the molecular mechanism involved in maintaining systemic iron homeostasis in mammals. This has been stimulated by the evidence that iron dyshomeostasis is an initial cause of several disorders, including genetic and sporadic neurodegenerative disorders. Critical Issues: However, very little has been done to investigate the physiological role of iron in peripheral nervous system (PNS), despite the development of suitable cellular and animal models. Future Directions: To stimulate research on iron metabolism and peripheral neuropathy"

CHAPTER 28: HIGH IRON CAUSES HEART DISEASE

https://www.mayoclinic.org/diseases-conditions/hemochromatosis/symptoms-causes/syc-20351443

"Heart problems. Excess iron in your heart affects the heart's ability to circulate enough blood for your body's needs. This is called congestive heart failure. Hemochromatosis can also cause abnormal heart rhythms (arrhythmias)."

https://www.webmd.com/heart-disease/news/20001025/too-much-iron-may-lead-to-heart-attack

"As the level of iron goes up in your bloodstream, so apparently does your risk for heart attack and stroke."

CHAPTER 29: HIGH IRON CAUSES LUNG DISEASES

Serum Hepcidin Levels Are Elevated In COPD And Are Associated With Increased Intracellular Iron In the Lung

http://www.atsjournals.org/doi/abs/10.1164/ajrccm-conference.2012.185.1_MeetingAbstracts.A6769

Anemia in Chronic Obstructive Pulmonary Disease - InTech

http://www.intechopen.com/download/get/type/pdfs/id/30558

Chronic obstructive pulmonary disease (COPD) is the fourth leading cause of death .... underlying mechanisms are complex, including dysregulation in iron ...

Why Are Asthma Rates Soaring?: Scientific American

http://www.scientificamerican.com/article.cfm?id=why-are-asthma-rates-soaring

Apr 14, 2011 - Asthma rates have been surging around the globe over the past three ..... This research sheds the light on connection between increased iron ...

CHAPTER 30: HIGH IRON CAUSES CANCER

https://web.archive.org/web/20190404105332/http://www.unveilingthem.com/IronCausesCancer.

The role of iron in cancer.

www.ncbi.nlm.nih.gov/pubmed/8664805

"Numerous laboratory and clinical investigations over the past few decades have observed that one of the dangers of iron is its ability to favour neoplastic cell growth. The metal is carcinogenic due to its catalytic effect on the formation of hydroxyl radicals, suppression of the activity of host defence cells and promotion of cancer cell multiplication. In both animals and humans, primary neoplasms develop at body sites of excessive iron deposits."

Iron, radiation, and cancer.

www.ncbi.nlm.nih.gov › ... › Environ Health Perspect › v.87; Jul 1990

"Increased iron content of cells and tissue may increase the risk of cancer. In particular, high available iron status may increase the risk of a radiation-induced cancer."

Cancer Project / Iron: The Double-Edged Sword

www.cancerproject.org/protective_foods/building.../iron.php

"Iron encourages the formation of cancer-causing free radicals. Of course, the body needs a certain amount of iron for healthy blood cells. But beyond this rather small amount, iron becomes a dangerous substance, acting as a catalyst for the formation of free radicals. Because of this, research studies have shown that higher amounts of iron in the blood mean higher cancer risk."

Iron and Cancer | e-Journal of Traditional & Complementary Medicine

ejtcm.com/2011/03/18/iron-and-cancer-2/

"Iron is a powerful stimulus for cancer growth, invasion and metastasis."

Iron's Dangers

raypeat.com/articles/articles/iron-dangers.shtml

"The pioneer researcher in the role of iron in immunity believed that an excess of dietary iron contributed to the development of leukemia and lymphatic cancers."

Breast Cancer and Iron

www.healthyfellow.com › Women's Health

"A relatively new piece in the breast cancer prevention puzzle is beginning to come to light. A study just published in the Journal of Clinical Biochemistry and Nutrition is the latest to point

out an apparent link between elevated iron levels and an increased risk of breast cancer."

Iron in Men

www.menweb.org/alexiron.htm

"Iron acts as a cancer-promoting agent by two separate yet synergistic mechanisms: 1) by producing "free radicals," and 2) by feeding cancer cells."

Iron, calcium linked to lung cancer

www.nutraingredients.com/.../Iron-calcium-linked-to-lung-cancer

Dec 5, 2005 – Iron and calcium are linked to a higher risk of lung cancer in new research from the Harvard School of Public Health.

Iron-regulating protein is strong predictor of breast cancer prognosis ...

www.sciencedaily.com/releases/2010/08/100804151351.htm

Aug 5, 2010 – A new study may soon help to spare some women with breast cancer from having to undergo invasive and toxic treatments for their disease.

The role of iron in infections and cancer.

gordonresearch.com › Iron

Iron is an oxidant as well as a nutrient for invading microbial and neoplastic cells. Excessive iron in specific tissues and cells (iron loading) promotes ...

Iron enhances tumor growth

www.cancerprev.org/Journal/Issues/17/1/43/1434

Idiopathic hemochromatosis is associated with a high risk of primary liver cancer. To test the hypothesis that iron enhances tumor growth, we have conducted the ...

Cancer and Iron - IMPPC

www.imppc.org/research-activities/cancer-and-iron/

Elevated iron stores are linked to an increased risk of cancer and cancer mortality . One third of HH patients will develop hepatocellular carcinoma if treatment is ...

Iron and colorectal cancer risk: human studies.

www.ncbi.nlm.nih.gov/pubmed/11396694

CHAPTER 31: ENRICHED WHITE FLOUR BLOCKS COPPER 7 WAYS

As we saw, phytate depletes copper. The decision between white flour and whole wheat is a bad one. They each deplete copper.

The values of phytic acid in breads ranged between 1.48 mg/g (white wheat-bread) and 7.53 mg/g (bran bread).

At first glance, you might think, oh ok, white bread is better?

However, enriched White Flour has been stripped of the bran, and 5 nutrients are added: thiamin, riboflavin, niacin, folic acid, and iron. The first four are B vitamins.

"The process of enriching flour restores its nutritive value by replacing nutrients lost during milling in amounts similar to those lost. Almost 95 percent of the white flour in the United States is enriched with iron and four of the B vitamins: thiamin, niacin, riboflavin and folic acid."

But does it really restore the nutritive value by restoring all that was lost? What is lost?

What are the vitamins and minerals in wheat germ?

https://fdc.nal.usda.gov/fdc-app.html#/food-details/168892/nutrients

per 100 gram of wheat germ:

Calcium, Ca	39	mg
Iron, Fe	6.26	mg
Magnesium, Mg	239	mg
Phosphorus, P	842	mg
Potassium, K	892	mg
Sodium, Na	12	mg
Zinc, Zn	12.3	mg
Copper, Cu	0.796	mg
Manganese, Mn	13.3	mg
Selenium, Se	79.2	µg
Thiamin	1.88	mg
Riboflavin B2	0.499	mg
Niacin B3	6.81	mg

Pantothenic B5 2.26 mg
Vitamin B-6 1.3 mg

What are the vitamins and minerals in 100 grams of white bread?

https://www.eatthismuch.com/food/nutrition/white-bread,4021/

Vitamins and minerals

Calcium	144 mg	15%
Iron	3.6 mg	46%
Magnesium	23 mg	7%
Phosphorus	98 mg	10%
Potassium	not listed	
Sodium	not listed	
Zinc	0.7 mg	5%
Copper	0.1 mg	6%
Fluoride	48.9 µg	- added!
Manganese	0.5 mg	27%
Selenium	22 µg	32%
Vitamin A IU	1 IU	
Vitamin B6	0.1 mg	7%
Vitamin E	0.2 mg	2%
Vitamin K	0.2 µg	1%

The copper declined from 0.76 mg to 0.10 mg.

The copper content in wheat germ is higher than the total intake of copper for the average person!

A cup of wheat bran (not germ), has a list of similar minerals, including 0.58 mg of copper!

https://www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=76&contentid=20077-1

Enriched White Flour is a major food staple in the food supply that is in nearly everything. It is not just "white bread". It's in sourdough bread, noodles, pasta, tortillas, cereals, the cracker aisle, the cookie aisle, the baking good section, hot dog buns, hamburger buns, muffins, cakes, pie crust, croissants, gravy, and anything made with flour.

The 5 nutrients added, the B vitamins and the iron, all block copper. The phytate blocks copper.

But bread is even worse, as the iodine doctors have noticed.

In most breads, before 1980, they used iodine as a dough conditioner. Today, they use neurotoxic bromine, instead of iodine. And bromine blocks iodine.

They often also remove natural yeast, and use aluminum instead, another neurotoxin.

Most bread also contains traces of glyphosate. Glyphosate is even sprayed on organic wheat to kill it for the harvest. Since it is not used while it is growing, but only to kill it, it is still considered organic. Glyphosate is a metal chelator. It chelates copper! It chelates other minerals, too, like calcium and magnesium.

Let's review the copper antagonists in enriched white flour:

1. Phytate blocks copper. (even more phytate in whole wheat bread)
2. Iron blocks copper.
3. Niacin and B vitamins block copper.
4. Has the copper content removed.
5. Bromine, a neurotoxin. (Copper is a major nerve healer)
6. Aluminum, a neurotoxin. (Copper is a major nerve healer)
7. Glyphosate, a metal chelator/binder/remover (it chelates/blocks copper)

A lot of people have "gluten intolerance". This is also called "Celiac disease". Others have noted that Celiac disease is copper deficiency.

Copper is good for the gut. It helps build collagen. Copper is an astringent. Copper should tighten the pores in the intestine, healing "leaky gut". Copper thickens the skin and similarly strengthens the walls of the intestine.

A few quotes on glyphosate and the diseases it potentially causes:

"RoundUp has been potentially linked to instances of cancer, celiac disease, Parkinsons, and more." Sounds like copper deficiency.

"In the next 50 pages [not me, I'm quoting here] I will present irrefutable research-based evidence that casual exposure to the chemical glyphosate is one of the causes of birth defects, miscarriages, premature births, cancer - non-Hodgkin's lymphoma and hairy cell leukemia, DNA damage, autism, irreparable kidney and liver damage, infertility, ..."

"AMPA, the glyphosate metabolite, also has genotoxic effects. Neurotoxicity effects include Parkinsonism have emerged following acute exposure. Exposure to glyphosate resulted in oxidative stress in lab animals and death of neuronal cells, correlating with Parkinsonian pathology."

I apologize for losing the source of those quotes, but this is a book on copper, not glyphosate.

Glyphosate, pathways to modern diseases II: Celiac sprue and gluten intolerance

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3945755/

"Celiac disease, and, more generally, gluten intolerance, is a growing problem worldwide, but especially in North America and Europe, where an estimated 5% of the population now suffers from it. "

Glyphosate, a chelating agent—relevant for ecological risk assessment?

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5823954/

Those are copper deficiency symptoms! Cancer, Celiac Disease, Parkinson's, infertility, birth defects, miscarriages, premature births, irreparable kidney and liver damage, neurotoxicity...

And it's a very similar story with white rice. But you can't just eat white rice all the time, because rice is high in arsenic, another toxin.

Some people say if you look hard enough, all food is bad for you. That view might be a bit extreme. What is realistic? I am not perfect. I eat hamburgers with white bread, because I live in the USA. This is one reason why I will continue to supplement with copper and iodine, and other things.

CHAPTER 32: FLUORIDE LEECHES COPPER FROM PIPES

Do we even need fluoride for our teeth? There is no evidence that fluoride is good for the teeth. Only many claims.

WATER FLUORIDATION & THE QUALITY OF EVIDENCE PROBLEM

https://fluoridealert.org/studies/rct/

"As far as the York team were able to determine, there are no randomized controlled trials for water fluoridation. It's not that they couldn't have been done. Of course they could have been done. But there are none."

https://www.facebook.com/watch/?v=2638677459687501

Is fluoride even good for the bones? No. It causes skeletal fluorosis, which is weak bones.

https://en.wikipedia.org/wiki/Skeletal_fluorosis

"Skeletal fluorosis is a bone disease caused by excessive accumulation of fluoride leading to weakened bones."

The average American has a fluoride level in their bodies just under the level that would lead to the beginning of skeletal fluorosis. Of course 66% of Americans do not have arthritis. But about 33% do. Arthritis hits harder the older you are, and of course, fluoride has a 20 year half life in the body, and thus, accumulates more with age.

High Fluoride is found with High copper (and lead) in pipes:

High levels of fluoride, copper, and lead detected in water for hundreds of Sandy residents, city says

https://www.fox13now.com/2019/02/15/sandy-city-drinking-water-has-elevated-levels-of-lead-copper-sources-say/

The CDC admits that fluoride binds to copper in pipes, by providing the solution to the problem: fluorosilicates, rather than sodium fluoride.

https://www.cdc.gov/fluoridation/engineering/corrosion.htm

"The most common forms of fluoride for approximately 92% of the drinking water that is fluoridated are fluorosilicates, as either fluorosilicic acid or sodium fluorosilicate. Using fluorosilicates to fluoridate drinking water adds silica, a corrosion inhibitor, to the water and increases the silicates available for stabilizing the pipe surface, which contributes to reduced corrosion."

Fluoride binds to copper:

There is a copper/fluoride molecule. It is water-soluble.

https://en.wikipedia.org/wiki/Copper(II)_fluoride

The Stability of Metal Halide Complexes in Aqueous Solution (Nickel, Copper, and Zinc) (1956)

http://actachemscand.org/pdf/acta_vol_10_p0727-0734.pdf

They appeared to conclude that the copper fluoride and zinc fluoride bond is ten times as strong as the copper chloride and zinc chloride bonds, page 7, second to the last paragraph.

Copper(II)_fluoride may bind with phosphorous, making it even more stable:

https://www.researchgate.net/publication/226923473_Molecular_complexes_of_copperI_Easy_a

"Typically, CuF(PPh3)3 2MeOH appears to be stable up to 118 C and loses 2 MeOH and 3 PPh3 between 118 and 274 C yielding volatile CuF at 274 C."

CHAPTER 33: EFFECTS OF FLUORIDE ON THE BODY AND COPPER

Fluoride lowers ceruloplasmin, the key copper transport protein in the blood, thus blocking copper.

Serum sialic acid and ceruloplasmin levels in experimental fluorosis

(Y D Sharma, 1983)

https://pubmed.ncbi.nlm.nih.gov/6836584/

Published way back in 1983, fluoride lowers ceruloplasmin.

Fluoride lowers copper:

Effect of excessive dietary fluoride on nutrient digestibility and retention of iron, copper, zinc, and manganese in growing pigs

https://pubmed.ncbi.nlm.nih.gov/16217139/

"Excess fluoride levels could decrease growth performance and change the retention of [lower] iron, copper, zinc, and manganese in pigs."

Side note: I do NOT supplement with manganese, as it is a known neurotoxin. Manganese is very high levels in some green smoothies, and it appears it causes no harm from that form. Perhaps the greens keep it bound.

Fluoride exposure in humans lowers copper levels, and other minerals, by about 10%. But again, there is a testing and measurement problem with copper.

Serum copper, zinc, and magnesium levels in patients with chronic fluorosis

http://fluoridealert.org/studytracker/15781/

Fluoride does over 182 bad things to the body.

Iodine helps and cures 182 identifiable conditions of iodine deficiency which are all the same symptoms and conditions that show up with fluoride poisoning, as listed here, in 175 scientific papers and references: This is an absolutely amazing and very thorough list.

Source: http://poisonfluoride.com/pfpc/html/symptoms.html

Abnormal Sweating, Acne, ADHD/Learning Disorders, Allergies, Alopecia (Hair-loss), Alzheimer's Disease, Anaphylactic Shock, Anemia, Apnea (Cessation of breath), Aorta Calcification, Asthenia (Weakness), Asthma, Atherosclerosis, Arthralgia, Arthritis, Ataxia,

Autism, Back Pain, Behavioural Problems, Birth Defects, Blind Spots, Body temperature disturbances, Breast Cancer, Cachexia (wasting away), Carpal Tunnel Syndrome, Cataracts, Change in blood pressure, Chest pain, Cholelithiasis (Gallstones), Chronic Fatigue Syndrome, Collagen breakdown, Cold Shivers, Coma, Concentration Inability, Constipation, Convulsions, Crying easily for no apparent reason, Death, Decrease in Testosterone, Dementia, Demyelinizing Diseases, Dental Abnormalities, Dental Arch smaller, Dentral Crowding, Dental enamel more porous, Dentral Fluorosis (Mottling of teeth), Delayed Eruption of Teeth, Depression, Diabetes Insipidus, Diabetes Mellitus, Diarrhea, Dizziness, Down Syndrome, Dry Mouth, Dyspepsia, Dystrophy, Early/Delayed Onset of Puberty, Eczema, Edema, Epilepsy, Eosinophilia, Excessive Sleepiness, Eye, ear and nose disorders, Fatigue, Fearfulness, Fever, Fibromyalgia, Fibrosarcoma, Fibrosis, Fingernails:Lines/Grooves, Fingernails:Brittle, Forgetfulness, Gastro-disturbances, Gastric Ulcers, Giant Cell Formation, Gingivitis, Glaucoma, Goitre, Growth Disturbances, Headache, Hearing Loss, Heart Disorders, Heart Failure, Heart Palpitations, Hepatitis, Hemorrhage, Hives, Hoarseness, Hyperparathyroidism, Hypertension, Hypoplasia, Immunosuppression, Impotence, Incoherence, Infertility, Inflammatory Bowel Disease, Inner Ear Disorders, Irritability, Joint Pains, Kidney Failure, Lack of Energy, Lack of Co-ordination, Loss of Appetite, Loss of Consciousness, Loss of IQ, Loss of Spermatogenesis, Low Birth Weight, Lung Cancer, Lupus, Magnesium Deficiency, Memory Loss, Mental Confusion, Migraine, Monisiliasis (Candidasis), More fluorosis/high altitudes, More hypothyroidism/high altitudes, Mouth Sores, Myalgia (Muscle Pain), Myotrophy (Muscle wasting), Multiple Sclerosis, Muscle Cramps, Muscle Stiffness, Muscle Weakness, Muscoskeletal Disease, Nausea, Osteoarthritis, Osteoporosis, Osteosarcoma, Optic Neuritis, Oral Squamous Cell Carcinoma, Otosclerosis, Parkinson’s Disease, Pins & Needles, Polydipsia, Polyneuropathy, Polyurea, Pyelocystitis, Premature Delivery, Pruritis (Itchy Skin), Pulminary Edema, Recurring Colds, Respiratory Complications, Restlessness, Retinitis, Rhinitis, Schizophrenia, Sceroderma, Skin Pigmentation, Secondary teeth erupt later, Sensitive to light, Seizures, Shortness of Breath, SIDS, Sinus Infections, Skeletal Changes, Sleep Disorders, Slipped Epiphysis, Sluggishness, Skin Irritations, Spondylitis, ankylosing, Stillbirths, Swallowing Difficulties (Dysphagia), Swelling in Face (Angioedema), Telangiectasia, Testicular Growth/Alteration, Thirst, Thrombosis, Thyroid Cancer, Tinnitus, Tingling Sensations, Visual disturbances, Ulcerative Colitis, Urticaria (Hives), Uterine Bleeding, Uterine Cancer, Vaginal Bleeding, Vas Deferens Alterations, Vertigo, Vitiligo (white spots/skin), Weak Pulse, Weight Disturbances, Zinc Deficiency

These are symptoms of excess fluoride, and also symptoms of iodine deficiency. And now that I have looked over the list; most of them are also symptoms of copper deficiency, or possibly so. Those that I don't see as copper deficiency, would be the following 3: Cholelithiasis (Gallstones), Coma, Diarrhea. This does not mean those conditions would not improve with copper.

Since copper appears to do so much more than this list, copper is probably more important than iodine.

What else does fluoride do? It wrecks the nerves and the intelligence.

The people suing the EPA over fluoride claim there are "over 180 studies demonstrating fluoride’s neurotoxicity."

https://www.theonlineclarion.com/opinion/2021/05/05/i-am-suing-the-us-epa-over-fluoride-added-to-our-drinking-water/

While iodine's effectiveness in increasing intelligence is now proven publically in multiple ways, the same cannot yet be said for copper. Or maybe it has been said, but I have not yet found it.

At most, we can say that copper helps to detox fluoride, and copper helps the nerves in at least 15 different ways. Presumably, with less fluoride, and with better nerves, copper could boost intelligence as much, if not more, than iodine. I feel a boost. A few others who have taken copper on based on my research report the same. Insights come easier. Tolerance for abuse is far less. The mood is increased. Positive feelings increase. Thinking is faster. Reflexes are better.

Fluoride in tap water, not copper, causes kidney and liver problems:

"Fluoride may diminish kidney and liver function in adolescents

https://www.sciencedaily.com/releases/2019/08/190808091358.htm

Date: August 8, 2019"

"This study's findings, combined with previous studies of childhood exposure to higher fluoride levels, show there is a dose-dependent relationship between fluoride and indicators of kidney and liver function."

Entirely different researchers, 2007:

Dose-effect relationship between drinking water fluoride levels and damage to liver and kidney functions in children

https://pubmed.ncbi.nlm.nih.gov/16834990/

These findings are important. Often copper is blamed for causing kidney and liver problems. Shouldn't we rightly put more blame on the toxin fluoride, than the nutrient copper?

Maybe copper is only to blame if and when fluoride carried copper into the body, from tap water, and copper is only a marker for high body fluoride?

Maybe taking extremely high doses of copper, such as 20,000 mg, cause too much fluoride to be processed in the liver, and excreted in the kidney too quickly?

Boron and iodine also detox fluoride. I have read on a boron forum, that 2 people complained of kidney pain after taking 1/4 teaspoon borax (100 mg boron) in a liter of water. I asked a kidney specialist about this; is it the rapid fluoride detox, rather than the boron? She agreed with me. She said boron does not cause kidney problems, because it is good for the kidneys, it cleans them out.

CHAPTER 34: FLUORIDE IN THE FOOD SUPPLY AND OTHER SOURCES

Some people think we only have to worry about fluoride in the water. Or maybe they skeptically think, "Well, I don't swallow my toothpaste".

Dentists often begin fluoride treatments for teenagers, right when they start getting acne, which is from the fluoride.

But fluoride has many other sources, nearly invisible. They put fluoride-based antifungals on grapes and dried fruits, and so fluoride ends up in California Wines. When used after harvest, as a fungicide, or preservative, fluoride does not have to be listed as an ingredient. You can buy organic dried fruit, that is preserved with fluoride!

In France, they put copper sulfate on the grapes used to make wine. This could explain why people in France who drink red wine, have less heart disease, which is caused by copper deficiency.

Water is fluoridated to 0.7 ppm. Also 0.7 mg per liter. That amount of fluoride causes neurological problems.

And that is very close to the amount of copper most Americans get, less than the RDA for copper!

Chicken feed is 130 ppm fluoride or 130 mg/liter of fluoride in chicken feed. It is used as an antibiotic. Chickens and birds can tolerate a far higher amount of fluoride than humans. Why? I think it's because chickens lay eggs, and eggshells contain calcium, which binds to fluoride. They also don't give chickens IQ tests.

Fluoride is also in black tea, and green tea, at levels higher than tap water. Herbal teas are clean.

Fluoride is in Teflon-coated aluminum non-stick frying pans. There are two reasons to avoid these pans: fluoride and aluminum!

Fluoride is a key ingredient in gore-tex waterproof fabric liners.

Fluoride is used in "glide" dental floss.

"First study to show association between Oral-B Glide dental floss and higher exposures"
https://silentspring.org/news/dental-flossing-and-other-behaviors-linked-higher-levels-pfas-body

Stain-resistant carpets and furniture contain fluoride.

CHAPTER 35: MINERAL COMPOSITION OF THE HUMAN BODY

https://en.wikipedia.org/wiki/Composition_of_the_human_body

An excerpt from the list at Wikipedia:

----- Major Minerals -----

Oxygen	43 kilos = 65% of your body's mass.
Carbon	16,000 g = 16 kilo
Hydrogen	7000 g
Nitrogen	1800 g
Calcium	1000 g or 1 kilo
Phosphorus	780 g
Potassium	140 g
Sulfur	140 g
Sodium	100 g
Chlorine	95,000 mg or 95 grams
Magnesium	19,000 mg or 19 g

----- Trace Minerals -----

Iron	4,200 mg --lowers copper
Fluorine	2,600 mg --lowers copper, nerve toxin
Zinc	2,300 mg --lowers copper
Bromine	260 mg --nerve toxin
Lead	120 mg --lowers copper, nerve toxin
Copper	72 mg
Aluminium	60 mg --nerve toxin
Iodine	20 mg
Boron	18 mg

Note, this is not the complete list.

About the major minerals: The medical establishment would have you believe that oxygen, comprising 65% of your body, is a poison. They use terms like "oxidative damage". Show me the control group deprived of oxygen. Dead in minutes.

Sci-fi fiction says we are a "carbon" based life form. Maybe we are an oxygen-based life form. We have nearly three times as much oxygen as carbon.

The average person has 1 million mg (a kilo, 2.2 pounds) of calcium in their bodies. Taking calcium supplements appears silly in that context. The body appears to know how to get it and hold onto it.

We also have plenty of phosphorus in our bodies, 780 g or 780,000 mg. That's over a pound, as there are 454 grams/pound. We likely do not need to supplement. We also get about 43 mg of phosphorus in a typical 250 ml coke. Often health advocates warn about this much phosphorous. I find that silly, in context, unless someone is drinking several liters of coke in a day. The sugar will harm you more than the phosphorous.

Sulfur is widely regarded as super toxic. Yet we have about a third of a pound of sulfur in our bodies. It often smells like rotten eggs. And yet, MSM Sulfur and DMSO Sulfur are touted as wonderful supplements. We take MSM Sulfur which appears to be safer.

Sodium and Chlorine make up "salt". If they were combined, we would have about 2/3rds of a pound of salt in our bodies. Chlorine is needed to make hydrochloric acid in the stomach to aid digestion. I have heard others say copper helps the body retain salt. Salt is a major mineral, needed for hydration, it helps the body hold on to water. Dehydration and adrenal insufficiency have the same symptoms, both are a lack of salt and copper.

About the trace minerals:

Iron and Fluorine and Zinc, the top three on the trace minerals list, all block copper. Lead also blocks copper.

Fluorine, Bromine, and Lead are all toxins, neurotoxins, and are all above the list of copper, a key nerve healer. In other words, the average person has three neurotoxins in far greater quantities than copper, the nerve healer. That could explain quite a few problems.

Fluoride is detoxed by iodine, boron, copper, calcium, tamarind, leafy greens, turmeric, and likely also sulfur and silica.

Bromine is detoxed by iodine and salt. If you start a high iodine program of 50 mg iodine, you may need more salt to get through bromine detox.

Lead is detoxed by zinc. Lead, zinc, and silver are found bound together in the earth as "galena" a type of silver ore.

Some believe that iron (because it blocks copper) is also a neurotoxin, or at least, acts as one. That would place 4 neurotoxins in the list that are above copper in the list! Thus, blaming copper for supposedly "neurotoxic" activity, rather than those other four known neurotoxins, is not right. It is especially not right, in light of the list of ways that copper helps the nerves and brain.

In that list, at least 4 are known nerve toxins, and they should not be in the body at all: Fluorine, Bromine, Lead, and Aluminum.

Zinc is not a neurotoxin, but all five microminerals on the list, listed above copper, are all blocking copper: iron (if in excess), fluorine, zinc, bromine, lead. This is the situation for the average person! So, unless you took extra steps to detox each of these, they are likely problems. Furthermore, just because you have an "average" amount like other people, does not mean these are not problems for you.

The "average" American has 4200 milligrams of iron in the body and only 72 mg of copper. While iron can block copper, this might not be as bad as it sounds. About 3500 mg of that iron is already a part of red blood cells, where it belongs. Some might be in the bone marrow, making new blood cells. Only excess iron would be bad, and copper helps to prevent that, presuming you are no longer having any signs of copper deficiency.

As I was writing this book, I had the chance to speak with Morley Robins. He explained that iron is usually measured by the blood, but the cells can contain ten times as much iron. And if iron in the cells is high, blood iron is low. And if iron in the cells is low, iron in the blood is high. It's like this with copper as well, so blood tests may accurately test the blood, but they are not accurate indicators of what is in the body.

The "average" American has 2600 milligrams of fluoride in the body and only 72 milligrams of copper. This is 36 times more fluoride than copper. This is very bad. Why?

Because Fluoride blocks Copper. Conversely, the good news is that Copper Detoxes Fluoride. Because they bind together. Which process wins? We need over twice the weight of copper to bind fluoride. At that ratio, they block each other. That is the ratio needed to make a copper/fluoride molecule. So we need at least twice as much copper as fluoride, or more, to detox the fluoride, not 1/36th of it.

Fortunately, Iodine and Boron can also detox fluoride, but clearly, the average person does not get nearly enough of those, either. Note, they are at the bottom of the list, with the smallest amounts in the body.

Remember a few chapters above, that fluoride blocks copper by 10%? That was in people with skeletal fluorosis, compared to "average" people who have 2600 mg fluoride, and only 72 mg of copper, with the average person having mild or sub-clinical skeletal fluorosis. So, they are comparing very heavily fluoridated people, with heavily fluoridated people to get that 10% block of copper by fluoride. But fluoride might be a lot worse. Why?

There is no control group of people without fluoride!

There is no control group of people who have taken "high copper" at over 20 mg for a few years. Except for me and my wife!

There is no control group of people who have not been exposed to fluoride, and who have taken

high copper regularly for health. Unfortunately, my wife and I have both been exposed to fluoride.

So we really do not know how badly fluoride affects copper levels, it is likely far worse than the 10% that the study suggests.

On the other hand, maybe it's not that bad, either. If most fluoride is not actively creating harm to nerves, then where is it? Most of the fluoride is probably in the bones, as fluoride does get attracted to calcium.

This has several implications.

But first, a study on the lack of effects of copper at 10 mg over 90 days:

Lack of effects of copper gluconate supplementation

Pratt et al (1985)

https://academic.oup.com/ajcn/article-abstract/42/4/681/4691570

"A double-blind study was done giving 10 mg of copper/day as copper gluconate or placebo capsules for 12 wk. The seven subjects receiving copper gluconate had no change in the level of copper in the serum, urine, or hair. There was also no change in the levels of zinc or magnesium. There was also no significant change in levels of hematocrit, triglyceride, SGOT, GGT, LDH, cholesterol, or alkaline phosphatase. The side effects of nausea, diarrhea, and heartburn were the same in the subjects receiving copper gluconate and subjects receiving placebo capsules."

In short-term studies, over about 2-3 months, people who take copper at 10-20 mg do not hold on to very much copper. Rather, they excrete almost all of it. Well, 90 days of 10 mg of copper is only 900 mg of copper. This is not enough to detox 2600 mg of fluoride, the fluoride burden of the average person. We actually need twice as much copper, by weight, by mg, as fluoride, to create a molecule of 1 copper atom to 2 fluoride atoms because fluoride is so light. Even the very high 20 mg is only 1800 mg of copper over 3 months, which is still only about 1/3 as much copper as needed to detox the fluoride.

Maybe a person needs to get past most of the fluoride detox, in order to get most of the benefits of copper?

Maybe copper, since it is easily excreted, is a perfect detoxer for fluoride?

Maybe a person with a copper deficiency disease, needs even more copper, both to get past fluoride detox, and iron detox, and get enough to cure their copper deficiency. This would take time, and would likely require people to slowly ramp up copper intake, to get past the nausea problem, and initial stages of fluoride detox. And/or it would require a topical copper application to get past the problem of nausea in the stomach.

I would naturally assume that the body can hold at least as much of a vital nutrient as it could

hold a toxin, and do that without damage, and thus, that a healthy body could get copper levels up to, and over 2600 mg, instead of the usual 72 milligrams.

The iodine doctors, Abraham, Brownstein, and Flechas, have already made a similar argument. They postulate that the body can hold up to thousands of milligrams of iodine, rather than just 30 mg or so when the body is fully saturated. I assume the same thing could happen with copper, as well.

In fact, there is evidence that human bodies can hold over several thousand milligrams of copper, as some people who take a copper chelating agent, excrete over 2000 mg of copper in the urine in one single day.

Disorders of metal metabolism

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5764069/

"Urinary excretion of 1000 to 2000 mg copper within 24 hours after oral administration of 1 g penicillamine is diagnostic [6]."

See? People can hold up to 2000 mg of copper, or more! The usual is 72 mg to 150 mg of copper.

That is evidence that most people are woefully copper deficient, only having 72 mg of copper in the body.

Every cell in the human body wants both iodine and copper.

Admittedly, the 2000 mg of copper excreted is usually diagnostic of Wilson's Disease. I will examine Wilson's Disease in a chapter later.

See also:

https://en.wikipedia.org/wiki/Mineral_(nutrient)#Essential_chemical_elements_for_humans

CHAPTER 36: COPPER BINDS TO, AND DETOXES FLUORIDE

Copper can be used to detox fluoride. What if we should have more copper in our bodies than fluoride? At least twice as much or more. Why? Because the copper (II) fluoride molecule contains twice the weight of copper as fluoride. Most people, the average person, has 36 times more fluoride than copper.

How much copper do we need to detox fluoride?

If we assume all copper detoxes fluoride with perfect efficiency, we would need twice the amount of copper as fluoride in the body. The average body has 2600 mg fluoride and 72 mg copper. We would need 5200 mg of copper. If we assume that we should be able to fix a deficiency within about 3 months, this implies we divide that amount by 90 days. 5200 / 90 = 57.8 mg per day for 90 days.

Nobody can start copper at 57.8 mg per day. Nausea sets in at about 3-4 mg per day. So it could take up to 3 months or a year just to work up to 60 mg/day.

Is such a high amount of copper reasonable?

Well, the high iodine protocol is 50 mg iodine per day, plus more in the form of potassium iodide.

Vegans barely get 1 mg of zinc per day. People take up to 50 to 150 mg of zinc per day.

People barely get 1-3 mg of boron per day. People supplement up to 100 mg boron per day.

Compared to those three other minerals, 50 mg a day of copper seems potentially reasonable, once you get past the scare tactics.

One man took 2000 mg of copper per day, and did not die, but checked in to a hospital because his red blood cells were getting destroyed faster than he could make them. He took 2000 mg copper a day for 4 months, or 120 days of that. And there was no liver damage! I would guess that that much copper either blocked most of his iron, or blocked Vitamin C, or a bit of both, or caused other nutrient deficiencies.

2000 mg x 120 days = 240,000 mg. Compared to that, what is 5200 mg spread out over 90 days? Very very little.

The lethal doses start at about 10,000 mg, and some say 20,000 mg, in one day. Compared to that, what is 5200 mg spread out over 90 days? Very very little.

They say that at doses of up to 10 to 20 mg over 60 days, the body does not absorb the copper, it mostly excretes it. Yes. Well, that is only 600 mg to 1200 mg of copper. That is not nearly enough to detox a fluoride burden of 2600 mg.

If we think about it, maybe the fluoride is causing the copper to be excreted at 10 mg copper/day levels over a short time frame?

So maybe the body does not have a "homeostatic mechanism" to excrete copper, maybe, it's just a symptom of fluoride detox. Show me the sample of Americans who are not toxic with fluoride. They don't exist.

There are several further implications of this explanation.

Some say that elemental copper is toxic because it is not bound by ceruloplasmin. But ceruloplasmin is merely a copper transport protein in the blood. And there are others; albumin. The point is that elemental copper, if it binds to elemental fluoride, and is then quickly excreted, is neither poisonous nor is it "not doing anything" merely by being excreted. Excretion is good if it's carrying out toxins on the way.

And maybe people say elemental copper is toxic, as a hopeful mechanism to explain the mysterious and unexplainable "copper toxicity" idea of copper being toxic at low levels, even though there is no evidence for copper being toxic at low levels, nor any evidence of elemental copper being toxic.

Some have said that since the body does not retain copper in these studies, it is evidence that the body does not want the copper and it is evidence that copper is toxic. Neither conclusion is warranted in light of the body burden of fluoride if the fluoride is causing the body to excrete the copper.

Iodine is easily excreted. This is not evidence of toxicity.

Vitamin C is easily excreted. This is not evidence of toxicity.

The B Vitamins are easily excreted. This is not evidence of toxicity.

Boron is easily excreted. This is not evidence of toxicity.

In contrast, toxic things stay in the body for a long long time and are very difficult to remove: it's like this for mercury, lead, aluminum, fluoride, and presumably other toxins.

In fact, all of the water-soluble vitamins and minerals I just listed are good detoxing agents, because they are easily excreted, and so they will pull the toxins out with them as they go.

The beginning stages of detox are nearly always uncomfortable. Detox symptoms might not be symptoms of "copper toxicity" but rather simply indications that copper is binding to fluoride, moving it around, and causing detox symptoms. Some detox symptoms might be skin rashes, as toxins sometimes try to come out through the skin. But as we have seen, copper is a historic remedy for skin rashes!

Another detox symptom is nausea. It is said that "copper causes nausea". But not always. People can build up a tolerance.

How did a man consume 2000 mg of copper per day, without vomiting continuously? (Note, this is dangerous, as he became anemic after 4 months.) He must have been building up a tolerance. Maybe the tolerance is simply having gotten past the worst part of a fluoride detox. Fluoride also causes nausea in the stomach.

Another detox symptom might be acne. Fluoride seems to come out in acne, and there is a book about this called "Fluoride; the Hidden Cause of Acne".

When going through fluoride detox, it is important to remember that copper is not toxic to the stomach. Copper strengthens the stomach, and copper heals stomach ulcers. Don't blame copper for the effects of fluoride.

Fluoride is a nerve toxin.

In contrast, copper helps make 4 neurotransmitters, and assists in their reuptake, and is needed to make and restore the myelin sheath around the nerves. All things speed up nerve transmission. And boost coordination and intelligence.

Fluoride causes joint damage.

Copper is excellent for the joints, it helps make collagen.

Fluoride causes weak bones.

Copper strengthens the bones, making collagen.

Fluoride lowers testosterone.

Copper boosts testosterone.

Fluoride is the toxin. Not copper.

CHAPTER 37: 143,153 ARTICLES ON COPPER AT PUBMED.GOV

https://pubmed.ncbi.nlm.nih.gov/?term=copper

Before 1967, there were only about 500 articles on copper.

Before 1993, there were only 31,547 results. (1993 is an important year, as we will see later in the chapters on the RDA and tolerable upper human limit, set by the government in 1993)

Before 1999, there were only 41,507 results.

As of 9/30/21, there are 141,832 Articles on Copper at PubMed.gov

As of 10/24/21, there are 142,255 results, another 423 articles in less than a month.

As of 12/02/21 there were 143,153 results, another 1321 articles, in just over two months.

This is discouraging to my efforts. There is no way I could ever read all of the articles.

This is encouraging. With so many articles, copper is important.

CHAPTER 38: GOVERNMENT (USA) ARTICLES

https://ods.od.nih.gov/factsheets/Copper-Consumer/

"Copper in dietary supplements is often in the forms of cupric oxide, cupric sulfate, copper amino acid chelates, and copper gluconate. It is not known whether one form of copper is better than another."

"Copper deficiency can cause extreme tiredness, lightened patches of skin, high levels of cholesterol in the blood, and connective tissue disorders affecting the ligaments and skin. Other effects of copper deficiency are weak and brittle bones, loss of balance and coordination, and increased risk of infection."

"Can copper be harmful?

Yes, copper can be harmful if you get too much. Getting too much copper on a regular basis can cause liver damage, abdominal pain, cramps, nausea, diarrhea, and vomiting. Copper toxicity is rare in healthy individuals. But it can occur in people with Wilson's disease, a rare genetic disorder. It can also occur if copper-containing water pipes leach copper into drinking water in your home or workplace."

"Are there any interactions with copper that I should know about?

Copper is not known to interact with any medications. "

I note there is almost no data on people who are taking over 10 mg of copper and also taking medications. Be careful.

(In other words, copper at normally small levels from 1-10 mg does not prevent medications from doing their function. This statement does not mean that medications do not block copper, which they do.)

https://ods.od.nih.gov/factsheets/Copper-HealthProfessional/

Interesting points from the factsheets for professionals:

Under "Health Risks from Excessive Copper"

"The Environmental Protection Agency has established a recommended upper limit for copper in public water systems of 1.3 mg/L [38,39]."

Note, they have not explained any actual health risks at slight levels above that, nor did the EPA, as we will see later.

Under the subheading "Interactions with Copper"

Copper is not known to have any clinically relevant interactions with medications.

Search "cdc copper". The CDC tends to change link locations frequently, resulting in broken links.

ToxFAQs™ for Copper

https://wwwn.cdc.gov/TSP/ToxFAQs/ToxFAQsDetails.aspx?faqid=205&toxid=37

Toxicological Profile for Copper

https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=206&tid=37

Toxicological Profile for Copper

https://www.atsdr.cdc.gov/ToxProfiles/tp132.pdf

The Toxicological Profile for Copper by the atsdr of the CDC is a 314 page document. It appears to be tremendously biased. They are primarily looking at copper as toxic. They use words like "exposure" and "contaminant" etc. They briefly consider copper as a nutrient, but that is not their focus. They use an odd form of measurement: "Cu/kg/day" For a 100 kilo man, you would have to multiply the values by 100. This enables them to use lower numbers to make copper seem extra toxic at lower values, but the values are extremely high.

As another example, the one time an infant got too much copper, they list it as 3 g. Which is 3 grams, or 3000 milligrams, a huge amount. The infant lived.

"Acute hemolytic anemia was observed in an 18-month-old child 2 days after he drank a solution containing approximately 3 g of copper sulfate (Walsh et al. 1977)."

Again, another example of bias:

They say: Musculoskeletal Effects. No studies were located regarding musculoskeletal effects in humans following oral exposure to copper

What they really mean: No studies were located regarding musculoskeletal ADVERSE effects in humans

following oral exposure to copper

Because undoubtedly, copper has effects on bone and muscle. Mostly positive. Muscle and bone are mostly collagen. Copper helps make collagen. They are not looking for "health effects" when they headline a section "health effects". They are looking only at adverse health effects, not positive health effects.

Despite the bias, the truth comes out.

"3.2.2.4 Neurological Effects

No studies were located regarding neurological effects in humans following oral exposure to copper."

In other words, they could not locate any studies on excessive copper causing nerve problems. Again, they are not claiming that low copper does not cause nerve problems, and they are not speaking to the topic of copper healing nerve problems. They are only considering whether excessive copper could cause nerve problems, and they found nothing!

This is in stark contrast to people who claim that copper causes nerve damage in Wilson's Disease patients who are supposedly suffering from "high copper" despite having low copper in the blood and low ceruloplasmin in the blood.

"3.2.2.5 Reproductive Effects

No studies were located regarding reproductive effects in humans following oral exposure to copper. "

No reproductive harm, no matter how high the levels.

"3.2.2.7 Cancer

No studies were located regarding carcinogenic effects in humans following oral exposure to copper. "

What they are saying is no human ever got cancer from taking copper, no matter how much, and there are no studies showing that people who received copper end up getting cancer. Again, the truth slips out. Copper does not cause cancer. Those who claim it does are only looking at associations, not interventions.

It is very important to note what was NOT included in the CDC's 314 page document, "Toxicological Profile for Copper". They never mention levels of copper supplements that cause any kind of harm, and they never mention any toxicity or disease caused by copper supplementation. I'll say that another way, it's extremely important. There are no intervention studies, where they gave groups of people copper, which then caused harm. None. This lack of data in a 314-page document, which is all about the harms of copper, is amazingly positive for copper. There is, in essence, not a single study showing that copper supplements harm anyone, despite the 314 pages devoted to this exact topic. There are only case studies of poisoning and correlations. Amazing.

If the location of the next document moves or is broken, search "EPA copper limit". I will discuss this later in its own chapter.

National Primary Drinking Water Regulations

https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations

CHAPTER 39: (USA) RECOMMENDED DAILY ALLOWANCE (RDA) FOR COPPER: 0.9 MG - A SCAM

1993 version:

The US Government has a large volume reference book on vitamins and minerals:

Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc

https://www.nap.edu/download/10026 --free to download. 1993 version?

We are starting examining with the earlier version, since the 2001 version, while revised, keeps the RDA and UL the same.

This is the big "official government" study guide that lists plenty of studies, anecdotes, and reasoning, or lack thereof, that are used to supposedly justify things like the recommended daily allowances, or lack thereof, or the tolerable upper human limits for the various vitamins and minerals. This guide's recommendations are often quoted by various other government agencies, and other governments around the world, and other writers act as if they are the ten commandments handed down by God himself. Fortunately, I do not worship government, I actually worship the real God, and so, fortunately for you, I have the confidence and ability to examine their evidence and reasons for things, as if they were just people, which I will now do.

Like anything government does, "government science" is likely the worst kind of science you will ever see.

Part of the reason for this is that governments, and people in governments, issue orders. Order makers who order people to write "sciency" things that support their dictates don't seem to understand that this is not how science and truth actually work. The science is supposed to shape our views. We are not supposed to use our views to shape what the science says.

What they did to determine the RDA was use incomplete measurements of copper excretions in copper-deprived people, (they never tested a normal population!) which came to .5 mg of copper. They did not measure copper lost through breathing, nor sweating, nor the hair. Other studies show that a person can lose 1 mg of copper in the sweat on a hot day. They then tested giving people 0.58 mg of copper, and 8/10 tested deficient in copper. Then, they just arbitrarily increased it to .9 mg, with no further testing to see if that was sufficient. That is madness. And certainly not scientific.

Just so you follow their reasoning here, let's examine food and water.

Let's say you examine a person who is fasting, with no food or water. And then measure their urine output daily. Then conclude that is the amount of water people need to drink. Madness.

Let's say you starve a person, giving them no food. Then weigh their poo every day, if they poo at all. Then conclude that people need to eat that weight of food. It's insanity.

Let's consider babies. Their bodies have five times as much copper, by weight, as adults.

p. 234 "High iron intakes may interfere with copper absorption in infants."

p. 237-8: Human milk contains 250 mcg/L of copper. Cows milk contains 60-90 mcg/L. "Copper deficiency has been observed in infants fed cow milk (Cordano et al., 1964; Levy et al., 1985). "

For reference sake, babies get .25 mg/Liter in breast milk, from your average mother, who may be copper deficient. But how much of a liter of milk do babies get?

"The research tells us that exclusively breastfed babies, aged 1 month to 6 months, take in an average of 25 oz (750 mL)."

.25mg/Liter x 75% Liter = .1875 mg of copper that babies get daily.

The weight of a 1-2 month baby is 10 pounds.

The average nursing mother gets the US national average of about .75 mg of copper, and absorbs only about 55% of that, or .41 mg. She then excretes about .19 mg for baby in her milk, leaving herself about .22 mg, and is thus very copper deficient.

Pregnant women need more copper, but neonatal supplements often are loaded with zinc and iron, which both block copper, and yet often contain zero copper!

Lack of copper causes depression. Has anyone heard of postpartum depression? It's likely caused by the baby taking both the copper and iodine away from the mother.

For a grown man who weighs 20 times more than an infant, that implies .19 mg x 20 = 4 mg -- again, that's the equivalent of what a baby is getting from a mother who is low on copper herself.

Poisons often take several generations to end up creating infertility; this implies that mineral deficiencies may also take several generations to cause massive problems.

In other words, we might need more than 4 mg. Perhaps far more.

What if a mother was taking 25 mg of copper? What would her baby get? To my knowledge, that has not been tested.

The highest copper food, beef liver, a pound of liver contains 64 mg of copper. A pound of

oysters contains 37 mg. And a historical RDA for copper was 3 mg.

p. 229: “Several indicators are used to diagnose copper deficiency. These indicators—serum or plasma copper concentration, ceruloplasmin concentration, and erythrocyte superoxide dismutase activity (SOD)—are low with copper deficiency and respond to copper supplementation”

p. 230: “Serum copper concentration is a reliable indicator of copper deficiency, falling to very low concentrations in copper-deficient individuals.”

I agree that if the serum copper is low, then a person is likely copper deficient. However, if serum copper is high, this does not indicate that a person has sufficient copper, and is not also suffering from copper deficiency symptoms, because blood copper levels rise as a result of all sorts of copper deficiency symptoms. A second reason testing is a bad indicator is that if the average person is copper deficient, then testing "above average" is merely "above deficient", and could still be deficient. So testing is less than worthless if it leads people to be deceived into thinking they are above average, and "not deficient" if they actually are deficient. As we saw, 80% of people are copper deficient, getting less than the RDA daily.

“Ceruloplasmin concentration is also a reliable indicator of copper deficiency. Ceruloplasmin carries between 60 and 95 percent of serum copper, and changes in serum copper concentration usually parallel the ceruloplasmin concentration in the blood. Ceruloplasmin, too, falls to low concentrations with copper deficiency, far below the lower end of the normal range of 180 mg/L, and it responds quickly to repletion (Danks, 1988).”

Once again, ceruloplasmin levels go up in response to copper supplementation (repletion).

p. 233 "Copper Balance // Balance studies have been used in the past to estimate dietary recommendations. Numerous copper balance studies in humans have been conducted over a wide range of intakes (Mason, 1979). Unfortunately, there are a number of problems with this approach, as reviewed by Mertz (1987). Copper balance, which can be achieved over a broad range of dietary copper intakes, reflects prior dietary intake; thus long adaptation is required for results to be meaningful. Seldom are studies long enough. Such studies are prone to numerous errors, and data from some studies would suggest that an unacceptable amount of copper would accumulate over time if these levels of retention were continued. In addition, miscellaneous losses, while small, are very difficult to quantify. Therefore, balance studies were not used as an indicator of copper status."

In other words, if they give people copper, across a wide range, and then the person excretes that copper and stays in balance, they do not use that kind of approach.

p. 240: “Platelet copper concentration, however, declined significantly for eight of ten women fed 570 µg/day and increased with supplementation.” !!!

“While an EAR based on the first two studies was estimated at 550 µg/day, (.55 mg) the latter study suggests that 600 µg/day may be a marginal intake in over half of the population. Therefore, another increment was added to cover half of the population, and the EAR was set at

700 µg/day."

This seems crazy to me. They know 0.58 mg is too low, so they arbitrarily move the number to 0.7 mg??! Where is the science? Where is the testing? Why did they not say what the supplementation level was to fix the deficiencies at 0.57 mg/day?

On p. 241: They do something very weird. On either copper restricted diets, or zero copper diets, they try to estimate copper losses. Then they imagine this might be a lower minimum. But this fails to take into account that the body might (and actually does) hold on to copper more tightly under such conditions. IE, more copper is absorbed, at a higher percentage, when a person is copper deficient. So, they are measuring copper excretion in copper-deficient people.

"There are no data on obligatory copper losses in healthy people." This is troubling. They have avoided looking at healthy people. Why? Why would the government scientists avoid looking at healthy people, when trying to determine what healthy people need?

How is the RDA quoted in good conscience by anyone?

Because credentialed people simply have to memorize the "fact" that the Government established an RDA, and that simply needs to be memorized for the sake of the government test to get your grade, and thus, credential. The government's determination is not a fact, it's an opinion, and very poorly formed opinion, at that. That is not science.

p. 242: "Other losses, such as hair, nails, semen, or menstrual, have not been measured, and it is assumed they are similar to surface losses. Therefore the amount of absorbed copper needed to replace obligatory losses is 344 µg/day (240 + 20 + 42 + 42). Copper absorption at this level of intake is approximately 75 percent. Therefore, 460 µg/day of dietary copper would be the minimum amount required to replace obligatory losses. Endogenous fecal copper was 50 µg/day higher at 380 µg/day than at 460 µg/day, and so 50 µg/day was added to endogenous fecal losses to account for the increase that occurs between 380 and 460 µg/day. Thus 510 µg/day (460 + 50) of dietary copper is required to replace copper losses from all sources and to achieve zero balance."

They are specifically trying to come up with a minimum daily intake (EAR Estimated Average Requirement) that will be too low and create deficiencies; and they already know a higher level 580 ug/day or 0.58 mg creates deficiencies in 8/10 women! Why then would they think .51 mg would lead to "balance"? It's insane. Problems: They are not measuring copper being used up through exercise, lost in sweat, or copper being blocked by other supplements or environmental toxins. This is HORRIFIC science. Well, it is government science.

p 242,243: "The data available to set an EAR are limited for men and women, as well as the number of levels of dietary copper in depletion/repletion studies. Thus, a CV of 15 percent is used. The RDA is defined as equal to the EAR plus twice the CV to cover the needs of 97 to 98 percent of individuals in the group (therefore, for copper the RDA is 130 percent of the EAR). The calculated RDA is rounded to the nearest 100 µg.

RDA for Men 19–50 years 900 µg/day of copper 51–70 years 900 µg/day of copper > 70 years 900 µg/day of copper

RDA for Women 19–50 years 900 µg/day of copper 51–70 years 900 µg/day of copper > 70 years 900 µg/day of copper”

In other words, they never tested the RDA of .9 mg, to see if it also created copper deficiency! They just arbitrarily added a few percent to what was clearly causing deficiencies, assuming that would be enough.

Then, they failed to do any further tests.

But if it's not tested, it's not testable, and not repeatable, and not science.

This is a "dictate" and should be utterly disregarded.

Even the words they choose to use are fraudulent. "Recommended"? Not even close. Did they do one bit of study showing that this is the ideal amount for humans to take? Did they give low and medium and high levels across a wide array of ranges near to that level and then determine at which level is optimal, with the least adverse outcomes? No. In fact, they specifically excluded those approaches, slandering them as "balance" studies. This is government. Government issues dictates, and forces people to comply or else they use force. This is government complying with a court order to determine the lowest possible minimum requirement for prisoners. These are scientists with a gun to their head, out to comply with an extremely biased agenda.

I get the feeling by reading their work that a supervisor told the researchers who compiled their "big book" something like this: "Make sure you figure out the absolute minimum to keep prisoners alive. The goal here is to both comply with this ridiculous court order to determine minimums, and also save the government money. Oh, hell, I don't care if it takes years off their life, they are worthless people anyway. Just make sure you justify your work with some plausible scientific studies, some sort of words, and processes. Now hop to it, you have 3 months to comply!"

I certainly do NOT get the sense that their supervisor said, "Now, the court order has forced us to re-evaluate our mistakes. So we want to create the best health among prisoners that we can. The goal here is to help save money on medical bills. Vitamins and minerals are so super cheap, and we can buy them in bulk, so don't worry about the cost of them. Instead, use this chance to help determine the most optimal ranges of each to determine optimal human health. We can use the prisoners as study subjects themselves, where you can take a few years to help determine the most optimal ranges of everything. If we do it right, we will revise our estimates each year as we go along and learn more." Nope, none of that was implied by the methods used by the researchers, and no studies on prisoners were ever attempted.

There may be other bad agendas at work. Does the government consider the people the enemy? Some say the government has considered the people the enemy since World War II.

This also showcases the extreme limits and failures of people with "credentials" in the fields of

nutrition, dieticians, and doctors. All would be trained merely to repeat the minimums set by the government-approved curriculum on a test. But these are not facts. These are opinions. Biased opinions. Poorly formed opinions. We can't even call it science, because it was neither tested, nor repeated. The RDA should be ignored and forgotten, not remembered or quoted.

Another thing to consider: The RDA is actually a table of ranges, not just 0.9 mg for adults. There is a sliding scale of smaller amounts for teens, children, and infants, with a booster recommended for pregnant women and breastfeeding women. But infants typically supplement nothing. However, it is known that children have higher copper levels than adults. What is not known, and what was not studied, is how much copper children lose. They did not even test copper losses among healthy people. Do children naturally have more copper because they are typically more healthy? Does this correlate high copper with high health? Do children absorb more copper because they are more healthy? Do children need more copper because they are still growing? None of these questions appear to have been asked, let alone answered.

2001 RDA version:

Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc.

https://www.ncbi.nlm.nih.gov/books/NBK222312/

They continue to "struggle" to define an RDA, as follows:

"SELECTION OF INDICATORS FOR ESTIMATING THE REQUIREMENT FOR COPPER

Several indicators are used to diagnose copper deficiency. These indicators—serum or plasma copper concentration, ceruloplasmin concentration, and erythrocyte superoxide dismutase activity—are low with copper deficiency and respond to copper supplementation. However, except when diets are deficient in copper, they do not reflect dietary intake and may not be sensitive to marginal copper status. In addition, serum copper and ceruloplasmin concentrations increase during pregnancy and with a number of diseases, and therefore copper deficiency could be masked under these conditions. Platelet copper concentration and cytochrome c oxidase activity may be more sensitive to marginal intakes of dietary copper than plasma copper or ceruloplasmin concentration, but they have been measured in very few studies to date. No single indicator provides an adequate basis on which to estimate the copper requirement."

This can be summed up as "tests do not work, since copper is elevated in the blood, even in conditions of copper deficiency, and during disease, and since we can't use tests, we don't know anything".

Next, as in 1993, they try to explain why they ignore "balance" studies, across a wide array of intakes, as follows:

"Balance studies have been used in the past to estimate dietary recommendations. Numerous copper balance studies in humans have been conducted over a wide range of intakes (Mason, 1979). Unfortunately, there are a number of problems with this approach, as reviewed by Mertz (1987). Copper balance, which can be achieved over a broad range of dietary copper intakes,

reflects prior dietary intake; thus long adaptation is required for results to be meaningful. Seldom are studies long enough. Such studies are prone to numerous errors, and data from some studies would suggest that an unacceptable amount of copper would accumulate over time if these levels of retention were continued. In addition, miscellaneous losses, while small, are very difficult to quantify. Therefore, balance studies were not used as an indicator of copper status."

They endorse factorial analysis, as follows:

"Factorial Analysis

One approach to estimating minimum dietary mineral requirements is by the factorial method. Obligatory losses, the amounts of an element excreted with no dietary intake, are determined, and then the amount needed in the diet to replace these obligatory losses is calculated. Obligatory losses include urinary losses, gastrointestinal losses, sweat, integument, hair, nails, and other miscellaneous losses such as menstrual and semen losses. For copper, as for other elements, reliable values for many of these losses are not available. However, sufficient data are available to make reasonable estimates; therefore, this method can be used in support of estimates of dietary copper requirements made by other methods."

In other words, they are endorsing their prior approach, used in 1993, when they tried to measure copper excretion in women given copper-deficient diets, but without mentioning the details, which is even more deceptive. The details are that the excretion they measured was .5 mg, then they tried to give that to women in diets, and they nearly all became copper deficient rather quickly, then they just bumped the number up to .9 mg, without any further testing to see if that was good. Again, that's not science.

I note there are huge problems with this approach.

1. As much as 1 mg of copper can be lost in the sweat alone in a day, as pointed out by others. This is already above the RDA.

2. A huge volume of body mass is lost merely through breathing. It has been established that fat loss happens with the excretion of CO2. People can lose hundreds of pounds in this way up to, and over, a pound a day. How could they measure how much copper is lost in this way?

3. They admit that reliable values for many types of losses are "not available". Then why say "this method can be used..."?

4. Why measure copper losses when people are on copper-deficient diets? Why not actually do a study, and give copper until copper deficiency symptoms resolve and people are healthy? They are specifically avoiding trying to study healthy people, and they refused to look at studies giving people ranges of copper to see which levels result in the healthiest outcomes. They called these "balance" studies. That's bad science.

5. Again, there is no attempt to determine an optimal level of copper intake per day.

6. In studying how much copper babies get from milk, they are assuming that mothers in most

people are not copper deficient. But if most mothers are copper deficient, which many studies have indicated, then this is not a reliable indicator either. Admittedly, babies do tend to accumulate more copper per unit of body mass than their mothers typically have, by about a factor of 3 to 5 times more copper. This also indicates that adults/mothers are copper deficient. Copper and iodine losses could both account for postpartum depression, as both are highly indicated as being so very important for the nerves and brain.

7. Infants get 200 mcg copper per day or .19 to .2 mg. Infants weigh about 7-15 pounds from birth up to age one, or about 10 pounds. Adult men weigh up to 200 pounds. I weigh 230. 200 mcg x 20 = 4000 mcg, or 4 mg. The MINIMUM RDA should be 4 mg, not 0.9 mg. And again, this could be low if mothers are copper deficient, which they likely are.

8. The RDA's are not adjusted by weight. They are literally the same number for a 100-pound man as for a 400-pound man.

This is bad science. It's so bad, it's probably bad on purpose.

A baby is noted to have 13.7 mg of copper in the entire body, on average. I assume 7 pounds at birth. Average man 200 pounds. (Actual average, 197 pounds) 200/7 x 13.7 mg = 391 mg. However, the average adult person has 77 mg of copper. A baby thus has 391 mg / 77 mg more copper than an adult, which is 5 times more copper by concentration, on average.

Other researchers agree with my rough estimates and agree that the RDA's were poorly established.

"Copper"

(Collins, 2011 Nov 3)

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3226389/

"Dietary reference intakes for copper were established almost a decade ago (3). Based on a lack of experimental data"

Other Researchers Suggest an RDA of about 4 mg copper for a 100-kilo man.

Critical Review of Exposure and Effects: Implications for Setting Regulatory Health Criteria for Ingested Copper

2019 Dec 12

https://pubmed.ncbi.nlm.nih.gov/31832729/

"Based on this approach [perhaps the prior cited study], an oral RfD of 0.04 mg Cu/kg/day would be protective of acute or chronic toxicity in adults and children."

For a 100 kilo man, that's 4 mg.

CHAPTER 40: (USA) UPPER LIMIT FOR COPPER: 10 MG - ANOTHER SCAM

This is the official U.S. Government's recommendation on RDA and upper limits for copper, and a wide array of nutrients, it's the same 773-page book.

https://www.nap.edu/read/10026/chapter/9#248

You can download a FREE pdf! (Not that their recommendations are worth anything.)

There are a few ostensible "reasons" why they set the tolerable upper human limit for copper at 10 mg. Some other writers, like myself, see it as totally arbitrary, and due to a lack of reasonable evidence. What they do have is conflicting data, and only one possible dangerous data point. This case study:

"At higher doses, acute liver failure was reported in one subject, who had no known genetic defect in copper homeostasis, after consuming 30 mg/day of copper from supplements for 2 years, followed by 60 mg/day for an additional but unspecified period of time (O'Donohue et al., 1993)."

In other words, they have ONE CASE STUDY. There is no large body of studies showing liver damage in humans who take copper supplements within a certain range. There is no large body of studies showing liver damage in humans who take copper at high doses with all of the other co-nutrients that I'm taking that work to lower copper. There is nothing. In other words, the scientific method has never been applied to determine a tolerable upper human limit for copper.

This case study was never repeated. It is unscientific and unconfirmed.

In fact, since 1993, 28 years ago now, they have not followed up on their own recommendation on p. 252:

"Define the adverse effects of chronic high copper consumption for establishing upper intake levels and to evaluate the health risks of copper supplements."

This is utterly shocking. No follow-up now in 28 years! We live in the age of information. No follow-up? The government has nearly unlimited funding. They can't hire anyone to keep up with nearly 110,000 studies on copper published since 1993, nearly three times as many studies as they had back in 1993, of only 31,547 studies in PubMed? Was the internet even available back in 1993? Hardly. It was the age of bulletin boards, AOL, and slow dial-up speeds! Netscape was released in 1994. Even Google was not created until 1998!

No further studies since 1993 is an example of "willful ignorance". In legal terms, wilfulness carries with it extra penalties.

So this one case study must be extremely important. It is simply unavailable, except the abstract, as follows:

A case of adult chronic copper self-intoxication resulting in cirrhosis

https://pubmed.ncbi.nlm.nih.gov/10383882/

Abstract: “Copper “supplements” taken in a dose of 30-60 mg/day during 3 years caused severe liver cirrhosis necessitating orthotopic liver transplantation.”

As nearly every scientist knows, causation is extremely difficult to determine. And you generally need a large population, interventions, and placebos, and the researchers and participants must be blind to know who gets the placebo, and even then, causality is still difficult to determine. It is impossible to determine causality from a single case study. Therefore, the phrase "caused severe liver cirrhosis" in the one-line case study is another lie.

So, there is no other information on this case study.

No information on what drugs he took. Many drugs can cause liver disease.

No information on whether he was an alcoholic. Alcohol can cause liver disease.

No information on what diseases he had.

No information on what other supplements he took, or did not take.

No information on whether he had pre-existing liver disease, and was trying to cure it with copper.

When I was in college, I heard several stories of young men who died from liver disease. It was all alcohol-induced and happened to the guys who chronically drank 20-40 beers a day or more every day of the week.

Where are the thousands of reports of damage from copper supplements? There are none.

As it turns out, I have been taking over 10 mg of copper, on average 20-30 mg for the past four years now.

I have been taking over 70 mg copper every few days, for the past year now, as my studies encourage me to take more copper, and as I take more, the better I feel.

I AM ALIVE! My wife has done the same. My WIFE IS ALIVE. We are a counter case study. We can actually testify.

My wife HAD liver damage. I was an alcoholic, associated with liver damage, (now nearly 10 years sober).

Neither of us has any signs of liver damage.

Neither of us drinks any alcohol.

Neither of us takes any pharmaceutical drugs.

The whites of our eyes are very white, not yellow, and not bloodshot.

We take plenty of other supplements, and here is a list:

https://revealingfraud.com/2020/08/health/minerals-and-vitamins-im-actually-taking/

We take Iodine, Selenium, Boron, Sea Salt, MSM Sulfur, Potassium, Copper, Magnesium, Vitamin C, B complex, B12, Zinc.

Occasionally, we take iron, molybdenum, chromium, potassium iodide (stronger iodine), calcium, colloidal gold, vanadyl sulfate, colloidal silver, Diatomaceous Earth (Silica), Pantothenic Acid, Niacin.

Our "test" of taking copper in the range that the "case study" did, 30 mg/day, invalidates their conclusion. That is the nature of science. You repeat the experiment, and if you get different results, then you disproved the prior assertion.

The case study is a lie, then, for two reasons. You cannot determine causality from a case study. And our experience invalidates the claim.

It appears possible that this case study claim (that copper causes liver damage) is entirely fabricated. Maybe there was no man at all. People do lie.

Copper actually cures liver problems. Copper is found in the liver, and copper has a wide array of healing properties and no plausible toxic mechanisms of action. See chapter 59 on liver disease and chapters 66-85 on copper toxicity.

There were two copper intervention studies in humans, mentioned by the government; one at 7 mg/day the other at 10 mg/day. Neither study noted any liver damage.

From Olivares, 2005, who did further intervention studies, giving 10 mg copper and 20 mg copper in healthy subjects over 60 days:

https://academic.oup.com/jn/article/135/10/2367/4669830

"The UL is not a precise estimate of safe, chronic copper doses in humans; rather, it is based on estimates derived from usual dietary exposure multiplied by a factor of 10, considered a reasonable default value in the absence of specific dose-response evaluations."

I will go further. The UL of 10 mg showed no adverse events. The government had never studied any amount over that. This does not imply that 11 is dangerous, nor 15 mg, nor 20 mg, nor 30 mg, nor 40 mg, nor 50 mg, nor 60 mg all way up to amounts that real toxicologists have determined cause poisoning, which is around 10,000 to 20,000 mg. The only evidence of an adverse event above 10 mg, before we get to 10,000 mg, is this one famous case study. And as every student who takes statistics in college knows, you cannot draw conclusions about causality from a single case study.

Oh, there is a second case study. One man took 2000 mg copper per day for 4 months. He developed a blood disorder, but no liver damage. If copper caused liver damage, surely it would have shown up in the man taking nearly 100 times more copper than the first guy. So it doesn't. That second case study is below this other study.

(Olivares, 2011) also went further:

Risks and benefits of copper in light of new insights of copper homeostasis (2011) Olivares

https://pubmed.ncbi.nlm.nih.gov/21342755/

"Abstract

"Copper is an essential micronutrient involved in a variety of biological processes indispensable to sustain life. At the same time, it can be toxic when present in excess, the most noticeable chronic effect being liver damage. Potent, efficient regulatory mechanisms control copper absorption in the digestive tract and copper biliary excretion; absorption ranges between 12 and 60% in humans, depending on Cu intake, presence of other factors in the diet that may promote or inhibit its absorption and on the copper status of the individual. Current evidence suggests that copper deficiency may be more prevalent than previously thought, while copper toxicity is uncommon under customary daily life conditions. Menkes syndrome and Wilson disease are genetic conditions associated with severe copper deficiency and severe copper toxicity, respectively. Effects of milder degrees of copper deficiency and excess copper exposure are not well described, mainly due to lack of sensitive and specific indicators; serum copper concentration and ceruloplasmin are the most frequently used indicators, but they only detect rather intense changes of copper status. Of the many proteins assessed as potential markers of copper status the chaperone of Zn-Cu superoxide dismutase (CCS1) has yielded promising results; data on its performance under different conditions are needed to confirm its use as an indicator of early copper deficiency. Defining copper requirements and upper safe limits of consumption (UL) is a complex process since there are adverse health consequences from both copper deficiency and copper excess (U shape curve). The regulatory framework for risk assessment of essential trace elements introduced by the International Programme on Chemical Safety (IPCS) has proposed a homeostatic model to determine the Adequate Range of Oral Intake (AROI) of essential trace elements; the nadir of the resulting U shape curve serves to define the AROI. At this range of intake physiological mechanisms allow for normal homeostasis and basically, there are no detectable adverse effects. At present, Recommended Dietary Intakes (DRIs) and Adequate Intakes (AIs) are used to recommend copper intakes at different ages and life situations. Evidence obtained in humans and non-human primates presented here suggest that current copper UL should be re evaluated. Developing the scientific basis for a copper UL and evaluating the relevance of copper deficiency globally are future key challenges for copper researchers."

"Evidence obtained in humans and non-human primates presented here suggest that current copper UL should be re evaluated. Developing the scientific basis for a copper UL and evaluating the relevance of copper deficiency globally are future key challenges for copper researchers."

So, I'm not the only one saying the government's upper limit on copper is worthless. Thank you

Olivares!

So, "Homeostasis" means "no change". In other words, the US government scientists are saying that if you excrete as much copper as you take in, then you are in balance, and you should be good. In my opinion, there are way too many assumptions with that approach. If most of the excess copper is helping to excrete other toxins, then the excess copper might not be available for body processes. We might need more copper just to detox fluoride.

In a series of case reports on copper toxicity, one man took 2,000 mg of copper per day for 4 months, and lived. The adverse outcome was that his red blood cells started dying faster than they could be made (hemolytic anemia).

Source: https://www.ncbi.nlm.nih.gov/books/NBK225400/table/ttt00001/

"≈ 400 g of CuSO4 in water over a 4-mo period (≈ 2 g Cu per day) (2000 mg / day) Resulted in: Abdominal pain, hemolytic anemia"

Note: There was no mention of any liver damage!

So. How can 30 to 60 mg of copper "cause" liver damage if 2,000 mg of copper per day, over 4 months, did not? Again, this is evidence that the case study of the 30-60 mg of copper, "caused liver damage" is a lie.

Here is another case of high copper intake, and no liver damage.

"Mittal 1972 M, 22 yr, 1 Oral ingestion of ≈ 175 g of CuSO4 (≈ 70 g Cu) Severe abdominal pain, vomiting, diarrhea starting 1.5 hr post- ingestion; renal damage with hemoglobinuria; eventual recovery"

The amounts are huge. 175 g of copper sulfate, containing 70 grams of copper is a single 70,000 mg dose! No liver damage. Just kidney damage.

The biggest single copper sulfate intake level I could find:

"Jantsch et al. 1985 M, 42 yr, 1 Ingestion of ≈ 250 g of CuSO4 (≈ 100 g Cu) in attempted suicide Protracted vomiting, hepatic failure, response to chelation therapy, eventual recovery" Finally, we get to a liver problem. At 100,000 mg of contained copper in a single dose! How did he even survive if copper is toxic? I have to do the calculations if that were in pill form: 2 mg copper pills would be 50,000 pills / 90 per bottle = 555 bottles of copper supplements.

Oh my God, not even that much copper contained in 555 bottles of copper supplements killed this guy!? How safe is copper, anyway?

All three cases from the same list, linked above:

https://www.ncbi.nlm.nih.gov/books/NBK225400/table/ttt00001/

So, 20,000 mg is not the lethal dose, but a lethal dose, but only about 14% die at that dose.

The tolerable upper limit of 10 mg is said to be arbitrary. And it is said that it is the level at which we see "no liver damage". This, too is evidence of a lie. We do not limit pain killers to a level that creates "no liver damage". With pain killers, some liver damage is allowed! We do not set limits on alcohol to a level that creates "no liver damage". With alcohol, you can drink whatever you want. And many other drugs would have to be banned for causing liver damage. Copper is not even a drug. They cannot ban it. So, I guess they slander it, right?

As far as "10 mg of copper causing no liver damage" goes, you could similarly claim, "one drop of alcohol causes no liver damage". True. But it is totally useless information. People can usually have at least hundreds of thousands, if not hundreds of millions of times more alcohol than one drop before liver damage begins to take place.

Some may object to my complaint about the UL and reason, "Well, Jason, copper is available, and you are taking over the limit, so there really is no limit, right, so why complain about it?"

In one sense, yes. In other ways, no. For example, we live in lawsuit prone society. So organizations might be afraid to recommend copper above the limit. And many people trust government, so they would be afraid to go over the limit, or in many cases, afraid to approach the limit. People inherently think limits are dangerous. And scientific studies appear to be rare in studying above the limit, even though the government itself said it should explore the area above the limit, but did not follow up. And I get banned and blocked on Facebook routinely, for posting that I took above the government limit because what I am posting is "dangerous". As if neuropathy and copper deficiency, and diabetes, and brain damage from low copper, and heart disease from low copper are not dangerous?

A false claim of a "tolerable upper limit" of a super low, and totally unscientifically backed 10 mg is dangerous to people.

Even the name itself is a lie. "tolerable upper human limit". People have tolerated well above that limit. We know what a limit is.

Limits are arbitrary dictates, and this one has been proven incorrect, in multiple ways. In sum, it makes no sense. It's just the RDA "times ten". It's not based on evidence. The one case study was a lie, as case studies cannot prove causality. Other case studies, including my own experience, invalidate the case study. The case study was never repeated and is thus not scientifically supported. A limit of 1000 times less than a level of "no liver damage" makes no sense in light of many other things that knowingly cause liver damage and are legal.

Why isn't the upper limit "what babies get" "times ten"? Or "what babies get, times 15"? Babies get the equivalent of 5 mg. Times 15 is 75 mg. I am NOT establishing any limits. I expose lies, and I advocate freedom. Limits are, by nature, whimsical, arbitrary, and tyrannical. Limits are the opposite of freedom.

People, when asked why they climb Mt. Everest, retort, "because it was there". Why did I go

above the limit of copper? Because I was confident that I easily could ignore lies, and be far healthier. I was right.

2001 UL version:

Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc.

https://www.ncbi.nlm.nih.gov/books/NBK222312/

The new definition of the UL, and when it's ok to exceed it:

"TOLERABLE UPPER INTAKE LEVELS

The Tolerable Upper Intake Level (UL) is the highest level of daily nutrient intake that is likely to pose no risk of adverse health effects for almost all individuals. Although members of the general population should be advised not to routinely exceed the UL, intake above the UL may be appropriate for investigation within well-controlled clinical trials. Clinical trials of doses above the UL should not be discouraged, as long as subjects participating in these trials have signed informed consent documents regarding possible toxicity and as long as these trials employ appropriate safety monitoring of trial subjects. In addition, the UL is not meant to apply to individuals who are receiving copper under medical supervision."

Note, in a copper deficiency forum, doctors have recommended levels up to 30 mg/copper/day!

"Finally, animal species vary markedly in their sensitivity to copper (Davis and Mertz, 1987); thus it is difficult to determine the most appropriate model in which to assess human toxicity to copper."

I agree, and for another reason. Most animals can make their own Vitamin C, which, at 1500 mg, has been shown to reduce ceruloplasmin, a key copper transport protein in the blood. Many animals make the equivalent of 8000 mg of Vitamin C, which could demonstrate a significantly increased tolerance to copper. However, many animal studies show that animals can tolerate thousands of times more copper than the RDA.

"Copper homeostasis is affected by the interaction among zinc, copper, iron, and molybdenum." I agree. And over 45 other substances, as we already went over in chapter 24.

"It is difficult to determine the most appropriate model in which to assess human toxicity to copper."

I agree. I also propose that since copper helps to detox the body, people will vary greatly in the amounts of copper they can tolerate. How else can we explain why one man survived up to 250,000 mg of copper, yet many people begin to feel nausea at 2-4 mg of copper, that, in my experience, goes away after about 6 months to a year, presumably, once the initial detox effects of fluoride removal are no longer happening. They concur that people adapt.

"However, individuals may be able to adapt to even higher concentrations of copper in drinking water. No adverse gastrointestinal effects were reported in U.S. adults who consumed water containing approximately 8.5 to 8.8 mg/L of copper for over 20 years beginning in childhood (aged 0 through 5 years) (Scheinberg and Sternlieb, 1996)."

The following statement sounds like the government scientists are making thoughtful progress, but they fail to change their UL.

"In view of the weight of evidence supporting a genetic basis for the liver damage in Wilson's disease, ICC, and ICT, it is not appropriate to use data from such populations to develop a UL for copper in populations with normal copper homeostatic mechanisms."

Next, they continue to trot out the "one case study", that was likely all just made up:

"At higher doses, acute liver failure was reported in one subject, who had no known genetic defect in copper homeostasis, after consuming 30 mg/day of copper from supplements for 2 years, followed by 60 mg/day for an additional but unspecified period of time (O'Donohue et al., 1993)."

The government's UL is the same as their NOAEL, or "No-Observed-Adverse-Effect Level" In other words, zero harm from 10 mg copper per day.

Once again, they did not study 11 mg, and this does not imply that harm takes place at 11 mg, or even higher, even though their words imply exactly that.

And once again, studies are showing no harm at 20 mg copper per day.

And I have found no harm in myself and my wife taking 30 mg - 70 mg of copper per day.

There are no intervention studies where they gave people copper, who then later developed liver disease, despite their many claims that this is the main harm they are trying to prevent with their low UL. There is just one case study.

"The Tolerable Upper Intake Level (UL) for adults is 10,000 µg/day (10 mg/day), a value based on protection from liver damage as the critical adverse effect."

"a value based on protection from liver damage"?

Those are just words on paper with nothing backing them up.

"Other Systemic Effects. Little evidence indicates that chronic exposure to copper results in systemic effects other than liver damage."

This is interesting. So it's all about the liver damage, and they have no other adverse claims?

"On the basis of considerations of causality, relevance, and the quality and completeness of the

database, liver damage was selected as the critical endpoint on which to base a UL. The selection of gastrointestinal effects as a critical endpoint was considered because of the data involving acute ingestion of soluble (highly ionized) copper salts in drinking water. However, in the United States and Canada, liver damage is a much more relevant endpoint because of the potential for excess intake from food and supplements. Furthermore, extensive evidence from studies in humans and experimental animals indicates that liver damage is the critical endpoint resulting from daily intake of high levels of copper salts (IPCS, 1998)."

Ok. Now we have another source of liver damage from "high" copper, whatever that means: (IPCS, 1998) Great, lets go to the source!

IPCS, 1998 is a 398 page document, from the World Health Organization, here are two links:

https://inchem.org/documents/ehc/ehc/ehc200.htm

https://wedocs.unep.org/bitstream/handle/20.500.11822/29476/EHC200Copper.pdf?sequence=1&isAllowed=y

What is "high" enough copper to cause liver problems, according to the WHO?

"Rats given up to 305 mg Cu/kg per day orally in the diet as copper(II) sulfate for 15 days showed alterations in blood biochemistry and haematology (particularly anaemia) and adverse effects on the liver, kidney and lungs."

That is a huge amount of copper!

And what was the NOEL?

"Effects were qualitatively similar with other copper compounds and in other species. The no-observed-effect level (NOEL) in this study was 23 mg Cu/kg body weight per day."

For a 100 kilo man, that would be 2,300 mg of copper per day which is the highest "no observed effect" level. In other words, that does nothing, no harm, no liver damage!

That also fits with the one case study of a human who took 2000 mg of copper per day for 4 months and had no liver damage, only anemia.

So, the US is claiming to rely on these studies to come up with a UL of 10 mg copper? What a trick!

I just love looking up references, listed by the US government, that refute the US government. Both of those values are far, far higher than the 10 mg of copper per day. To take 2,300 mg, in 2 mg tablets, would take consuming 1150 tablets. Bottles of copper tablets can contain 90 tablets per bottle. A person would have to consume 12.7 bottles of copper tablets with 90 tablets at 2 mg each to get to 2,300 mg copper in a day. This would give the "no observed effect", not liver damage! COPPER IS SAFE!

They conclude they need to do more work. This is admirable, but being honest in one point by admitting their total ignorance, does not validate the UL they pronounce, it actually invalidates it, because they have done zero work to determine when bad things might happen at ever higher copper intake levels in a range over 10 mg, nor have they determined if good things happen at higher copper intake levels!

"RESEARCH RECOMMENDATIONS FOR COPPER

Determine the specific health risks associated with marginal copper deficiency.

Define the adverse effects of chronic high copper consumption for establishing upper intake levels and to evaluate the health effects of copper supplements.

Determine the involvement of low and high copper intakes on neurological and cognitive function."

Earlier, the government or someone had no trouble causing illness by inducing copper deficiency. But they have never given more and more copper until disease hit, or until people got vastly healthier. This is evidence of their anti-copper bias.

I have a chapter on Wilson's Disease. In sum, Wilson's Disease is better characterized as a low copper disease.

I will examine liver disease in its chapter, too. In sum, copper deficiency, not copper excess, causes almost all cases of liver disease, which is mostly all hepatitis, because there are almost no cases of high copper causing liver disease except in the 20,000 mg/copper intentional suicide cases.

CHAPTER 41: (EUROPEAN FOOD SAFETY AUTHORITY) (UL): 5 MG - THE SAME SCAM!

TOLERABLE UPPER INTAKE LEVELS

FOR VITAMINS AND MINERALS (Feb 2006)

European Food Safety Authority

https://www.efsa.europa.eu/sites/default/files/efsa_rep/blobserver_assets/ndatolerableuil.pdf

This is a 482-page document. They have a chapter on copper, which I will examine.

copper. p. 205

"The percentage absorption of dietary copper is strongly influenced by the amount of copper ingested (with the percentage absorption decreasing with increasing intakes (Turnlund et al, 1989; Turnlund, 1988). Turnlund et al (1989) used stable-isotope methodology to study copper absorption in adults. Diets were labelled extrinsically with 65Cu and copper absorption was dependent on the amount of copper in the diet. On a low copper (0.78 mg/day) diet, copper absorption was 55.6%, whereas it was 36.3% from the same diet with copper added to give total dietary intake of 1.68 mg/day and only 12.4% when copper was added to produce dietary intakes of 7.53 mg/day. A theoretical maximum absorptive capacity of 63-67% has been estimated from aggregate results of human copper absorption studies at various copper daily intakes (Wapnir, 1998)"

"A series of studies demonstrated that a 10-fold increase in dietary copper resulted in only twice as much copper being absorbed (Turnlund, 1991). Although subjects were in positive copper balance for the first six days, when intakes were increased from 0.8 to 7.5 mg/day, average retention decreased linearly during the next 18 days until it was negative during the last six days of the trial (Turnlund et al, 1989). The authors indicated that the negative balance must represent endogenous excretion of excess copper retained during the first six days of the trial. Indices of copper status, as a result of the body's regulation of copper, are resistant to change except under extreme dietary conditions. Turnlund et al (1990) showed that when dietary intakes increased from 0.8 mg/day to 7.5 mg/day (for 24 days), putative indices of status, including plasma copper, erythrocyte superoxide dismutase (SOD), caeruloplasmin and urinary copper excretion were not significantly different. When dietary intake is very high, regulation is challenged. At first, balance is positive but later (approximately three weeks) it becomes negative as the excess copper retained early after a change in diet is eliminated (Turnlund et al, 1989). Therefore, any intervention studies should be at least of this duration. It has been estimated that copper excretion by infants, might be as low as 50 µg Cu/kg body weight (Aggett, 1999)."

OK, a 10 fold increase in copper, from 0.8 mg to 7.5 mg resulted in no net increase in copper in the body, over 3 weeks. It was all excreted rather easily. If it's so easily excreted, how can it

build-up, or be a poison? Even many copper enzymes were unchanged during the 24 days of the study, a rather short time. They also did not detect any ceruloplasmin increase, which is reported to happen with increased copper consumption by other researchers.

Many things that are good are easily excreted. B Complex Vitamins and Vitamin C are easily excreted. Iodine is easily excreted. Water is easily excreted. None of those are poisons, and being easily excreted is not a marker of a poison. In contrast, fluoride, a known neurotoxin, has a 20-year half-life in the body. Copper is reported elsewhere to have a 26-day half-life in the body.

"3.2.3. Reproductive toxicity

There is some evidence to indicate an effect of exposure to copper compounds on animal reproduction. In some studies in rats, chronic oral exposure to 27-120 mg/kg bw per day of copper resulted in altered weight and/or histology of the testes, seminal vesicles, uterus or ovaries, albeit the results were not consistent. Other studies have demonstrated that exposure to copper compounds during gestation induced embryo/ foetotoxic effects at doses of 12 mg of copper/kg body weight and above (IPCS, 1999).

Birth alterations and fetal toxic effects start, in rats, at the equivalent of 2700 mg to 12,000 mg/day of copper for a 100-kilo man! So, to vilify "copper" they give huge amounts, up to beginning a lethal amount (over 10,000 mg equivalent), and declare it to be harmful? That's not science. That's a biased agenda. Others have noted zero reproductive harm from copper. Copper in reasonable amounts reduces miscarriage. Miscarriage is more commonly seen in copper deficiency. They are getting it all wrong!

"3.3.1. Acute Toxicity

Of 48 cases of copper poisoning examined, 12 were fatal and ingested doses ranged from 1 g to 100 g (1000 mg to 10,000 mg) copper dissolved in water (Chuttani et al, 1965). All cases were characterised by metallic taste, nausea and vomiting. Of the 12 fatal cases, seven apparently died from shock and hypotension or from subsequent renal damage with coma and uraemia. WHO have concluded that the fatal oral dose of copper salts is about 200 mg/kg body weight (WHO, 1993)."

So, fatal is 20,000 mg copper for a 100-kilo man. Notice how they also lump "all cases of poisoning" in with lethal cases. They fail to mention at what level lethal doses start, implying they start at 1000 mg. They do not. Lethal cases are in the 20,000 mg range, and this only happens in remote villages in India, where their only access to potential poisons is ultra-cheap copper sulfate, and they are trying to commit suicide.

Also, note the way they quote the amounts. They use small numbers on purpose, and I have to translate those numbers into an appropriate milligram amount, showing that the dangerous amounts are huge numbers.

And here is the same old case study of one man taking 30 mg again!

"3.3.2.4. Effects of copper supplementation

A subject given supplementary copper (30 mg/day) for two years followed by 60 mg/day for an unspecified period developed acute liver failure (O'Donohue et al, 1993). This level of chronic supplementation is extremely rare. Pratt et al (1985) saw no evidence of liver damage or gastrointestinal effects in seven subjects given 10 mg/day supplementary copper as copper gluconate for 12 weeks. Turley et al (2000) saw no effects of six week supplementation with 6 mg/day copper as copper amino acid chelates on LDL oxidizability in 24 healthy male and female subjects (FOODCUE project). Additional results from the FOODCUE project indicate no effect of copper supplementation (3 and 6 mg/day giving total copper intakes of approximately 4 and 7 mg/day respectively) on liver function and mononuclear leucocyte DNA damage as assessed by the comet assay (O'Connor et al, 2003). Moreover, a protective effect of supplementation with 6 mg copper (total intake approximately 7 mg/day copper) on erythrocyte oxidizability was observed in middle-aged subjects (Rock et al, 2000).

Urinary pyridinoline and deoxypyridinoline (markers of bone resorption) were significantly increased after six weeks of a low copper diet (0.69 mg/day) compared with a medium copper diet (1.6 mg/day), and significantly decreased on a high copper diet (6.0 mg/day) compared with the low copper diet (Baker et al, 1998)."

They fail to mention Olivares, who also saw no adverse effects of copper supplementation at 10 mg to 20 mg. When things are tested, repeated, and have the same results, that's science. So 10-20 mg of copper is SAFE, because that's what the studies showed.

Again, only 1 subject in the entire world is shown at 30 mg/day to 60 mg/day, where copper supposedly is the "cause". My wife and I are also such subjects, but we are actually alive, able to be interviewed, and I'm writing this book on copper!

The fact that they mention the same case study as the US, this one man who took 30-60 mg copper per day is highly suspicious. Was this case study created for political purposes? Why is the alleged bad experience of one man being used to warn the populations of two continents, or, the entire western world, away from copper? It does not even pass the smell test. Because copper is good for the liver. There is more liver damage among people who are copper deficient!

At this point, I am growing even more suspicious of this "one-man" study. So, I wondered. Did this case study report conveniently come out the same year it was quoted first by the US? I went into my notes. It did. 1993. 28 years ago was 1993. It is highly "convenient" that the very year they issued a UL of 10 mg, that one man just so happened to die the year by taking copper over that. And there has never been another case like that since then. And multiple studies and accounts refute it. That is exactly what you would expect to find if they invented data for their report.

"5. DERIVATION OF A TOLERABLE UPPER INTAKE LEVEL (UL)

5.1. Adults

A NOAEL of 10 mg/day is based on the absence of any adverse effects on liver function (as the critical endpoint) in the study of Pratt et al (1985). This was a supplementation study of seven healthy adults with 10 mg/day copper for 12 weeks. In the FOODCUE trial, where copper intakes were around 7 mg/day, no observed adverse effect of copper supplementation on liver

function in 24 healthy males and females was observed (O'Connor et al, 2003). In the study by Turnlund et al (1991) homeostatic data indicated that a 10-fold increase in dietary copper resulted in the absorption of only twice as much copper and that indices of copper status, as a result of the body's regulation of copper, are resistant to change except under extreme dietary conditions. For example, Turnlund et al (1990) showed that when dietary intakes increased from 0.8 mg/day to 7.5 mg/day (for 24 days), putative indices of status, including plasma copper, erythrocyte SOD, caeruloplasmin and urinary copper excretion were not significantly different. In the light of this evidence, the Committee decided that an UF of 2 is adequate to allow for potential variability within the normal population. An UL of 5 mg/day is derived."

So, this is a mystery. Why did the subjects excrete nearly all the copper they took? They conclude that the body does not want it, and thus, it is toxic, despite the failure to find any harm, and thus, they give a very low tolerable upper limit of 5, and an even lower level for the UF of 2, even though the test subjects tolerated 10 mg just fine with no adverse effects. And there could be other reasons their bodies excreted the copper. Maybe the copper is removing toxins? Maybe the average toxin build-up in people causes copper to be excreted in excess? Maybe they failed to study copper in conjunction with calcium and potassium, which are said to increase absorption. But this one indicator, that copper is easily excreted, is used to conclude that copper is a toxin. On that basis, water is toxic, because I go pee regularly. Their conclusion does not follow from the data! Furthermore, other data says that taking copper supplements increases ceruloplasmin, the copper-carrying transport protein. It may just take longer than 24 days, which is an extremely short duration to see any positive changes.

"5.2. Pregnancy and lactation

The upper level of 5 mg/day is not applicable during pregnancy or lactation because of inadequate data relating to this critical life stage."

They still have not tested copper in pregnant women as of 2006? And they are afraid of 5 mg/day for pregnant women due to lack of data? Why is this still an unknown? This is ridiculous. Reproductive harm starts at the equivalent of 2,700 mg for a 100-kilo human, according to their own listed rat study! Why issue a warning about 5 mg/day if there is no data to justify such a warning? Furthermore, given all the wonderful things that copper does in the body, both researchers and volunteers should be lining up to do such studies. Again, in 5.1, there were no adverse effects of 10 mg/day of copper, supported by quite a few studies now. Plenty of benefits, zero risk. Sounds like a great deal. Why issue warnings when they should be issuing endorsements or advertisements?

One of the ways you can tell people are lying is that they end up "tipping their hand". They overreach. They reveal their intentions. No studies of harm are anywhere near the low level, yet they set a low level. That is not science. That's an agenda.

CHAPTER 42: EPA'S LIMIT ON COPPER IN DRINKING WATER: 1.3 MG/LITER

National Primary Drinking Water Regulations

https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations

https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations#Organic

The limits for copper are 1.3 mg/Liter.

The limits for fluoride are 4 mg/Liter. The usual amount of fluoride in water is 0.7 mg/Liter, also expressed as 0.7 ppm.

That speaks volumes. Fluoride is a neurotoxin. Copper heals the nerves in at least 15 different ways, as I revealed in chapter 1.

The EPA lists negative outcomes for excess copper as:

"Short term exposure: Gastrointestinal distress"

"Long term exposure: Liver or kidney damage"

"People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level"

The EPA lists negative outcomes for excess fluoride as:

"Bone disease (pain and tenderness of the bones); Children may get mottled teeth"

Why is the upper limit on copper from the EPA at 1.3 mg/Liter?

The EPA's main justification is that they don't want people to get nausea in the stomach, which usually starts at 3-4 mg.

Now. Why do people get nausea from copper at such a low level, if the body needs copper for so many good things? I suspect nausea is caused by fluoride because, in tap water, copper is bound to fluoride.

So. How does copper get into the water supply from the pipes? "Corrosion" from "Acid".

"Most copper contamination in drinking water is the result of corrosion of copper pipes or

fittings. Corrosion can occur from water that is high in acidity and high in temperature. Corrosion also can be caused by water that is "soft," or free of magnesium or calcium salts that create a protective coating inside the pipe."

What is the acid from?

Here is the 147 page book, "Copper in Drinking Water" by the NATIONAL RESEARCH COUNCIL.

https://www.nap.edu/read/9782/chapter/1

Also here: https://www.ncbi.nlm.nih.gov/books/NBK225402/

There is no mention of "sodium fluoride" nor any mention of "fluoride" in their entire document! In a book on drinking water!?!

I think it's more likely that the EPA limits on copper in tap water are there because copper leeches into the water from fluoride. Copper in drinking water is evidence of fluoride in the drinking water. And if copper is elevated, then so is fluoride, and at dangerous levels, because existing levels are also dangerously harmful to people's brains and intelligence.

There is a copper (II) fluoride molecule. One copper atom with two fluorine atoms. Since fluorine atoms are so light, and copper is so heavy, the ratio of weight is about 2:1, twice the weight of copper to half the weight of fluoride.

Interestingly, the EPA limit is this same ratio. Tap water usually has .7 mg fluoride. And the limit on copper is 1.3 mg, about twice as much.

But the EPA can't admit this, politically. The EPA is being sued by people who are against fluoride in the water. They want the EPA to classify fluoride as a neurotoxin. The EPA is refusing, so far.

https://fluoridealert.org/issues/tsca-fluoride-trial/law-suit-documents/

https://www.theonlineclarion.com/opinion/2021/05/05/i-am-suing-the-us-epa-over-fluoride-added-to-our-drinking-water/

The people suing claim there are "over 180 studies demonstrating fluoride’s neurotoxicity."

I think it's a waste of time to ask the government to stop poisoning us, if that is their intent. Why would they stop?

It makes more sense to take personal responsibility, and drink distilled water, and bottled water without fluoride, and then to take the nearly free minerals that detox fluoride, such as iodine, boron, copper, calcium, and the fruit tamarind, and leafy greens, which I do.

The main justification for the EPA limit is found here and appears reasonable. To prevent

nausea.

Copper in Drinking Water.

https://www.ncbi.nlm.nih.gov/books/NBK225402/

"In 1991, EPA promulgated [declared by decree or proclamation] an MCLG of 1.3 mg per liter (L) for copper in drinking water to protect against adverse GI (Gastro Intestinal) tract effects. That value is based on a case study (Wyllie 1957) of nurses who consumed an alcoholic beverage that was contaminated with copper. In the study, a dose of 5.3 mg was found to cause GI symptoms. Based on an intake of 2 L per day, a concentration of 2.65 mg/L was determined to be the minimal dose at which symptoms could occur. That value was "divided by a safety factor of 2 in recognition of its essentiality" to yield the copper MCLG of 1.3 mg/L (Donohue 1997)."

I found other studies that suggest nausea from taking copper starts at around 4 mg copper, which confirms that account. As for why people get sick at such a low level, I remember reading that fluoride is quickly attracted to the copper in the stomach, binds with the copper, and people get sick from the fluoride. I apologize for forgetting my source on that. Personally speaking, I do not get nausea from copper anymore like I used to. I can drink 2 cups of coffee in the morning with a total 20 mg copper, 10 mg in each cup, with no problems. After 1-2 years, I may have gotten past the worst part of fluoride detox.

In testing, just for this book, I can now drink 3 coffees, each with 10 mg of copper, for a total of 30 mg of copper in the morning, and no nausea, as long as the coffee contains milk. Without the milk, I had a little nausea.

It is easy to find that fluoride causes nausea.

https://lpi.oregonstate.edu/mic/minerals/fluoride

"Nausea, abdominal pain, and vomiting almost always accompany acute fluoride toxicity."

There is another way copper gets into the water supply. They use copper sulfate in reservoirs to kill algae. This still does not prove copper sulfate is toxic, however, as there is another factor in the water. Dead algae. Dead things release toxins as they die. When you kill off bugs in the body, whether mold or bacteria, as they die, they give off toxins, and this creates what is known as the "herx" reactions, of temporarily increased toxicity as you begin a cleansing or detox action.

Copper primarily gets into the water supply from fluoride leaching copper off of copper pipes.

I suspect that the real reason why the EPA limit on copper in the drinking water is as high as 1.3 mg/Liter is that there is no practical way to get it lower than that. Government is not magic. Government is force. The government is putting fluoride in the water. The copper gets into the water from pipes. What can government do? Arrest the copper pipes that have been used for long before they started adding fluoride to the water? If they forced everyone to remove copper pipes, first of all, that's extremely intrusive and expensive and would be an Orwellian nightmare,

likely un-Constitutional, and generate a national debate, and people might start asking questions.

It is sneakier to set the copper limit of 1.3 mg at twice the fluoride limit of 0.7 mg, and not mention fluoride at all. Because any copper over that level indicates fluoride at excessive levels. And that is exactly what they have done.

The lack of any mention of fluoride in drinking water in their 147-page book on drinking water screams "we are defrauding you" very loudly.

CHAPTER 43: FDA SAYS COPPER SULFATE IS "GRAS": GENERALLY RECOGNIZED AS SAFE

Copper sulfate is defined in law as "generally recognized as safe", specifically allowed for use as a "nutritional supplement".

I am not listing this as proof that copper is safe. This is only evidence of what US law says regarding the subject. For those who take what the government says far too seriously, they should seriously consider this:

https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=184.1261

[Code of Federal Regulations]

[Title 21, Volume 3]

[Revised as of April 1, 2020]

[CITE: 21CFR184.1261]

TITLE 21--FOOD AND DRUGS

CHAPTER I--FOOD AND DRUG ADMINISTRATION

DEPARTMENT OF HEALTH AND HUMAN SERVICES

SUBCHAPTER B - FOOD FOR HUMAN CONSUMPTION (CONTINUED)

PART 184 -- DIRECT FOOD SUBSTANCES AFFIRMED AS GENERALLY RECOGNIZED AS SAFE

Subpart B - Listing of Specific Substances Affirmed as GRAS

Sec. 184.1261 Copper sulfate.

(a) Copper sulfate (cupric sulfate, CuSO4-5 H2O, CAS Reg. No. 7758-99-8) usually is used in the pentahydrate form. This form occurs as large, deep blue or ultramarine, triclinic crystals; as blue granules, or as a light blue powder. The ingredient is prepared by the reaction of sulfuric acid with cupric oxide or with copper metal.

(b) The ingredient must be of a purity suitable for its intended use.

(c) In accordance with § 184.1(b)(1), the ingredient is used in food with no limitation other than current good manufacturing practice. The affirmation of this ingredient as generally recognized as safe (GRAS) as a direct human food ingredient is based upon the following current good manufacturing practice conditions of use:

(1) The ingredient is used as a nutrient supplement as defined in § 170.3(o)(20) of this chapter

and as a processing aid as defined in § 170.3(o)(24) of this chapter.

(2) The ingredient is used in food at levels not to exceed current good manufacturing practice. Copper sulfate may be used in infant formula in accordance with section 412(g) of the Federal Food, Drug, and Cosmetic Act (the Act) or with regulations promulgated under section 412(a)(2) of the Act.

(d) Prior sanctions for this ingredient different from the uses established in this section do not exist or have been waived.

[49 FR 24119, June 12, 1984, as amended at 73 FR 8607, Feb. 14, 2008; 76 FR 59249, Sept. 26, 2011]

https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/cfrsearch.cfm?fr=170.3

(20) Nutrient supplements : Substances which are necessary for the body's nutritional and metabolic processes.

(24) Processing aids : Substances used as manufacturing aids to enhance the appeal or utility of a food or food component, including clarifying agents, clouding agents, catalysts, flocculents, filter aids, and crystallization inhibitors, etc.

CHAPTER 44: LEADING CAUSES OF DEATH FROM COPPER DEFICIENCY

So far, I can see that some people would criticize the articles and studies I have used at the start of the book as "weak". They were only a starting point. I found it rather startling that copper deficiency caused so many widely diverse problems, and I was further startled by my increasing realization that copper deficiency appears to play a large role in nearly everything that people die from; or at least, everything on the CDC's top ten list of things people die from, and far more than that, too.

One of the problems is that there is no "copper deficiency" credentialed experts out in the world. But there are paid professionals in "heart disease" and "cancer", etc.

But once you know what to search for, usually far more information can be found. I have often said, "knowing what to search for is 99% of the difficulty of finding good information". The next chapter, on the evidence of copper deficiency causing heart disease is far stronger than I would have thought. It's going to surprise you, too, because this excellent evidence has not made it into the mainstream media.

Before we get to the diseases, here is the CDC list of things people die from:

1. Heart disease: 614,348
2. Cancer: 591,699
3. Chronic lower respiratory diseases: 147,101
4. Accidents (unintentional injuries): 136,053
5. Stroke (cerebrovascular diseases): 133,103
6. Alzheimer’s disease: 93,541
7. Diabetes: 76,488
8. Influenza and pneumonia: 55,227
9. Nephritis, nephrotic syndrome, and nephrosis: (kidney disease) 48,146
10. Intentional self-harm (suicide): 42,773

Source: https://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm

In contrast, here is my list:

1. Miscarriage: about 1-2 million
2. Deaths induced inadvertently by a physician or surgeon or by medical treatment or diagnostic procedures 783,936.

3. Abortion: 664,435

4. Heart disease: 614,348

5. Cancer: 591,699

6. Deaths associated with preventable harm to patients: more than 400,000.

7. Sepsis (Blood Infections): 150,000 to 300,000

8. Chronic lower respiratory diseases: 147,101

9. Accidents (unintentional injuries): 136,053

10. Stroke (cerebrovascular diseases): 133,103

Source: https://revealingfraud.com/2019/08/health/cdcs-leading-causes-of-death-list-is-fraud/

Note, causes of death on my list might be overlapping in some cases. For example, if you die of a drug overdose, but die of a heart attack, it might be listed in both heart attacks and in "medical treatments". Further note. Nearly everything on my list that is not on the CDC's list, are things caused by the medical establishment, even abortions, which goes to show, they may well be hiding them, on purpose.

And with heart disease, they knew copper was a cure going back to the 1930s, and even more so by 1975. So the fact that this has never made it into the mainstream narrative of the media is highly suspicious.

CHAPTER 45: HEART DISEASE (IHD)

Ischemic heart disease (IHD) is a condition of recurring chest pain or discomfort that occurs when a part of the heart does not receive enough blood. This condition occurs most often during exertion or excitement when the heart requires greater blood flow. Ischemic means that an organ (e.g., the heart) is not getting enough blood and oxygen. Ischemic heart disease is also called coronary heart disease, or simply "heart disease".

This first study is amazing.

Copper deficiency may be a leading cause of ischaemic heart disease (IHD) (2018)

(DiNicolantonio, Mangan and O'Keefe)

https://openheart.bmj.com/content/5/2/e000784

Ischaemic means "restriction of blood supply", as is found in heart disease. It does not mean a specific kind of heart disease, it's just the general, normal kind of heart disease you know about. I have low respect for people who use big, rarely used words to try to show off their own intelligence. A function of genius is to make things more easily understood, not harder.

"Copper is an essential trace element that has been an overlooked factor in IHD (heart disease). Numerous animal and human studies have demonstrated that copper deficiency can cause IHD and that copper supplementation or adequate dietary copper can improve many of the risk factors for IHD. Copper deficiency could be driving much of the current burden of IHD in the population."

"In relation to IHD, the heart is one of the main organs affected by copper deficiency, causing a reduction in metabolism and energy supply in the heart.7 Insufficient dietary copper can produce almost every risk factor [80?] for IHD.8 There are many important similarities between copper deficiency in animals and IHD in humans, including glucose intolerance, hypercholesterolemia, abnormal ECG, hyperuricemia and hypertension, all of which are risk factors for IHD. Much of the lipid hypothesis of heart disease can be seen in the light of copper deficiency.9'"

"Rats that were made copper-deficient had a >50% increase in total cholesterol..."

"The group of copper-deficient animals that were fed high-iron diets either died of ruptured hearts or developed severe anaemia, enlarged hearts and livers, hypercholesterolemia and elevated triglycerides. Thus, copper deficiency ties in with the iron hypothesis of heart disease, in which excess levels of stored body iron promote IHD."

This study has 97 references!

The harms of copper deficiency:

Increased cholesterol, decreased glucose tolerance and abnormal ECGs.9

Increased LDL and triglycerides and decreased HDL. 15

Increased susceptibility of lipoproteins and tissues to oxidation. 11 (This one is huge. Copper deficiency causes oxidation, not copper, as is sometimes falsely claimed.)

Increased apolipoprotein B.11

Increased blood pressure. 87 (I previously learned that magnesium was the key for fixing high blood pressure. But it's copper, too.)

Increased plasminogen activator inhibitor type 1.78

Increased early and advanced glycation end-products. 35

Increased inflammation 43 and increase in the expression of genes involved in inflammation and fibrinogenesis. 47

Ultrastructural irregularities of elastin and abnormal endothelial cells, subendothelial space, collagen fibres and smooth muscle cells. 95

Increased atherosclerosis. 96

Myelodysplastic syndrome. 92 (poorly formed blood cells)

Hepatic iron overload. 19

Fatty liver disease. 31–33 47 93

Cardiac hypertrophy, 54 cardiomyopathy. 53 58

Optic neuropathy, myelopathy, anaemia and neutropenia. 91

Atrial thrombosis, abnormal ECGs and sudden death. 97

"Substantial evidence exists to show that marginal copper deficiency is common..." (NOT RARE!)

"Copper supplementation in humans leads to lower levels of markers of oxidative stress"

"With reductions in copper levels in nearly all foods over the last several decades along with widespread adoption of ultra-processed food, low average copper consumption and extensive subclinical insufficiency or deficiency of copper may be more common than once thought."

"While research and medical practice has focused almost exclusively on cholesterol and dietary

saturated fat as IHD risk factors, we may have overlooked an exceedingly simple, plausible and widespread condition, copper deficiency, as one cause, perhaps even a major cause, of IHD. Increasing consumption of ultra-processed food, as well as a general avoidance of copper-rich foods, may play a role in widespread copper insufficiency and deficiency and therefore may be linked to IHD via copper. Copper in the diet or as supplementation has low toxicity, and an increased consumption of copper has the potential to reduce the population-wide incidence of IHD, heart failure and fatty liver disease. Copper deficiency as a link to increased risk of IHD deserves more attention from both clinicians and researchers."

Next study:

Copper deficiency and cardiovascular disease: role of peroxidation, glycation, and nitration (2000)

(Saari)

https://pubmed.ncbi.nlm.nih.gov/11077985/

"Abstract

Dietary copper deficiency causes a variety of cardiovascular deficits. Systemic effects include high blood pressure, enhancement of inflammation, anemia, reduced blood clotting, and possibly arteriosclerosis. Effects on specific organs or tissues include weakened structural integrity of the heart and blood vessels, impairment of energy use by the heart, reduced ability of the heart to contract, altered ability of blood vessels to control their diameter and grow, and altered structure and function of circulating blood cells. In some instances, the cause of a defect can be directly attributed to reduced activity of a specific copper-dependent enzyme. However, three nonspecific mechanisms of damage have been implicated in cardiovascular defects of copper deficiency. They are peroxidation, the interaction of oxygen-derived free radicals with lipids and proteins (possibly DNA); glycation, the nonenzymatic glycosylation of proteins; and nitration, the interaction of nitric oxide and its metabolites with peptides and proteins. Though independently these mechanisms present great potential for damage, the possibility that they may interact presents an added reason for concern. Furthermore, the fact that at least two of these mechanisms are associated with diabetes and aging suggests that copper deficiency may exacerbate deficits associated with these two conditions."

Heart failure improvement from a supplement containing copper (2006)

(Klevay)

https://academic.oup.com/eurheartj/article/27/1/117/608121

"Copper deficiency is the only nutritional insult that elevates cholesterol, blood pressure, homocysteine, and uric acid, has adverse effects on electrocardiograms and arteries, impairs glucose tolerance, and promotes thrombosis and oxidative damage. More than 80 anatomical, chemical, and physiological similarities between animals deficient in copper and people with ischaemic heart disease have been identified. 6*,7* Copper deficiency in animals can induce cardiac enlargement,8 pleural effusion,9 and heart failure10 that are reversible with copper supplementation."

This is amazing. Over 80 similarities? That is very compelling research. I think lists of 10-15 things are compelling. 80? I went to the sources listed, 6,7

6 Klevay LM. Ischemic heart disease. In: Bogden JD, Klevay LM, eds. Clinical Nutrition of the Essential Trace Elements and Minerals: The Guide for Health Professionals. Totowa, NJ: Humana Press Inc.; 2000. p251–271.

7 Klevay LM. Advances in cardiovascular-copper research. In: Schrauzer GN, ed. Trace Elements in Nutrition, Health and Disease. Montreal, Canada, Salt Lake City: Institut Rosell; 2002. p64–71.

The government attempted to refute Klevay, as follows:

Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc.

https://www.ncbi.nlm.nih.gov/books/NBK222312/

We examined this document previously when discussing the RDA and ULs, the 2001 version.

"Myocardial disease occurs in severely deficient weanling rats, and one investigator has hypothesized that ischemic heart disease is related to marginal copper status (Klevay, 1989). However, the myocardial changes observed in copper-deficient animals are very different from those of ischemic heart disease in humans (Danks, 1988). In severely deficient animals, the myocardium is hypertrophied and may rupture. Coronary artery resistance is decreased in copper-deficient animals, but it is increased in ischemic heart disease."

At first glance, the government appears convincing. One researcher, Klevay, noted similarities. Another noticed a difference. This appears to be how science works, the research could not be confirmed. But this is not even close to a refutation. First, Klevay noticed 80 similarities between copper-deficient animals and heart disease in humans. This is overwhelming evidence. Note, the government failed to mention how many similarities there were. The existence of one difference does not negate, does not disprove, the 80 previous similarities. Furthermore, I notice that heart hypertrophy, or enlarged heart, is a common feature of bodybuilders who take way too many drugs, and they do tend to die suddenly from heart attacks.

Furthermore, enlarged heart can be caused by ischemic heart disease, as noted here:

Causes of an enlarged heart

https://www.healthline.com/health/enlarged-heart#causes

"Any disease that makes your heart work harder to pump blood through your body can cause an enlarged heart. Just as the muscles of your arms and legs get bigger when you work them, your heart gets bigger when you work it."

"The most common causes of an enlarged heart are ischemic heart disease and high blood

pressure. Ischemic heart disease occurs when narrowed arteries, caused by fatty deposits that build up in your arteries, prevent blood from getting to your heart."

But let's examine the government's refutation further. It was only one difference. That is actually not a difference. That's quite absurd. Copper deficiency results in many diverse health problems, as I am categorizing in this book. I think I'm up to about 60-80, maybe up to 100 by the time I'm done. We have to ask ourselves. Why would the government attempt to counter Klevay's work on copper in heart disease, and do it so badly?

Furthermore, all the problems of copper deficiency, other than heart disease, do not refute that copper deficiency causes heart disease too, among other things. For example, copper deficiency also causes osteoporosis, diabetes, and neuropathy. Interestingly enough, people often have diverse multiple health problems all at once, it's rarely just heart disease alone. So obese people also often have diabetes, neuropathy, heart disease, and weak bones all at the same time, and all of that is copper deficiency. Some people just might not complain of relatively minor complaints such as neuropathy and back pain, compared to their larger problems of heart disease and diabetes that they are actively working on managing. I knew several such people: fat, heart problems, diabetes, neuropathy, bad back, all at once. This must be typical.

Once again, you can see the nature of the government's lie. It seems a rather desperate attempt to rebut, ignore, or slander, the great work of Klevay, but it does not even come close to a refutation, because it does not prove him wrong. So, let's hear more from Klevay:

Lack of a recommended dietary allowance for copper may be hazardous to your health https://pubmed.ncbi.nlm.nih.gov/9710839/ (L M Klevay, 1998)

Ischemic heart disease and osteoporosis are likely consequences of diets low in copper. Numerous anatomical, chemical and physiological similarities between animals deficient in copper and people with ischemic heart disease have been noticed.

1998? That was 23 years ago. Never in my life have I ever heard from any mainstream source that copper deficiency plays a role in heart disease.

A quick search in the news for "copper deficiency heart disease news" reveals the exact opposite of what the experts say:

https://health.usnews.com/health-care/for-better/articles/copper-in-your-childs-diet (March 2021)

That article from usnews.com claims that copper deficiency is rare, not common. And that copper toxicity is a bigger danger. They claim that chronic copper excess can lead to liver problems, but they provide no evidence. And no mention of heart disease at all. You might think the newer article would be better. But it's all misinformation. Maybe the date itself indicates a higher chance of misinformation?

I believe the lack of news around how copper deficiency causes heart disease means that this

particular issue is being censored. I find it very difficult to believe that news agencies are simply unaware of this shocking news, especially given that the science is rather clear from the years 1975, 1990, 2000, 2007, and 2018, and especially so, given the strength of the science on this.

Cardiovascular Disease from Copper Deficiency—A History

Leslie M. Klevay

https://academic.oup.com/jn/article/130/2/489S/4686517

"The copper deficiency theory on the etiology and pathophysiology of ischemic heart disease has been developed in a series of papers over two decades; the most important or recent include Klevay 1990a, 1990b, 1998 and 2000). The theory has evolved, has been modified and has attempted to incorporate newer concepts and findings such as aspirin, beer, homocysteine, iron overload and oxidative damage. It is offered as the simplest and most general explanation of ischemic heart disease, the leading cause of death in the industrialized world."

You now know more about how copper cures heart disease than most cardiologists.

CHAPTER 46: ABORTION & MISCARRIAGE

Health Effects of Excess Copper

https://www.ncbi.nlm.nih.gov/books/NBK225400/

"There are no reports in the literature of teratogenic effects (No Birth defects) associated with excess copper in humans."

https://www.dcnutrition.com/minerals/copper-cu/

"Reproductive failure is commonly observed in mammals fed Copper deficient diets (Underwood, 1977)."

Copper is needed for growth. Babies grow very fast. Again, babies have 5 times more copper in their bodies, per pound, than adults.

So far, the iodine doctors noted exceptionally high intelligence levels in babies born to mothers on iodine. I expect similar findings will happen as pregnant mothers re-discover the importance of copper. I expect even better results in mothers who take both copper and iodine at high levels during pregnancy. This will be something to watch for, as the word gets out.

The number one cause of abortions is anxiety, usually over relationship status, or money. But mothers are young, and young people typically do not have money, so lack of money is nearly always the case. And in the past, people were even poorer. In the past, and in other nations, babies are seen as a way out of poverty, as a mother with many children has a higher chance of being well looked after, by her own children, in her old age. So, we can't blame the lack of money for abortion, even though it is cited by young mothers as a cause. So it has to be something else. It's outlook or attitude. Outlooks often change when people get proper nutrition. Copper boosts mood and improves thinking. Abortion could well be because mothers are anxious because of copper deficiency, and/or iodine deficiency, but they just can't quite put their finger on the proper cause of their anxiety. They are just anxious, and then, being anxious, they blame what they are thinking about as the cause. Nobody worries about copper deficiency. They should.

CHAPTER 47: CANCER

I believe I have the largest list of natural cancer cures in the world. Over 90.

https://revealingfraud.com/2020/08/health/90-cancer-cures/

Upon my first search for "copper deficiency cancer", the modern medical establishment considers copper to be a cause of cancer, since copper is needed for new blood vessel growth, and cancer tumors need blood to grow. It is not disputed that copper helps new blood vessels to grow. However, this causality is shaky at best, because the blood is a source of healing. I can also see that dirty blood could be a source of toxicity if normal channels of toxin removal are blocked up. (Clean your colon, people!)

The other argument they make is that cancer tissues are high in copper, and that the blood is high in copper in people with cancer. Then, they assume copper is the cause. But correlation is not causation.

They have failed to consider whether the body has put copper into the blood, and into cancer tissues, on purpose, as an attempt to heal the cancer. I believe that is an equally valid, if not more valid way, to interpret the evidence of correlation, in light of the many ways copper heals.

Did they even stop to consider their theory, that blood causes cancer? Let's do a thought experiment. What tissues are highest in blood? OK, the heart. Heart cancer is nearly unheard of. It exists but is rare. What about blood vessel cancer? Again, unheard of. What about capillaries, they carry a lot of blood. Fingertips are high in capillaries. Did anyone hear of fingertip cancer? Not me. What I'm saying is that common sense thought experiments refute their idea that blood is a cause of cancer.

Upon my first impression, knowing what I do about copper, I know it has many anti-cancer properties. Copper is a powerful detoxer of fluoride, which is a cancer agent.

Copper makes SOD, which helps to detox nearly everything else, including many other cancer-causing chemical compounds. It is said that cancer is the body's way of building a wall around toxins that are not being eliminated.

It has also been said that cancer is fungal. Copper is an antifungal. Fungus tends to grow in dead or toxic tissues. So it is not either/or, is cancer "toxic" or "fungus", it is both. In fact, antifungal use is one of the main commercial uses of copper sulfate.

http://npic.orst.edu/factsheets/archive/cuso4tech.html#uses

"Copper sulfate is used as a fungicide, algaecide, root killer, and herbicide in both agriculture and non-agricultural settings."

What is the job of fungus in nature? To decompose dead things.

One of the best antidotes to dead tissues, is fast-growing tissues, such as cancer. Another cure would be simply new growth of normal tissue. Copper helps tissues grow.

The issue here is one of theory vs. reality. Does giving people copper cause cancer? They have tried this. No, it does not.

http://npic.orst.edu/factsheets/cuso4gen.html

"The U.S. Environmental Protection Agency (U.S. EPA) has not published a cancer rating for copper sulfate. This is due to a lack of evidence linking copper or copper salts to cancer development in animals that can normally regulate copper in their bodies."

Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc.

https://www.ncbi.nlm.nih.gov/books/NBK222312/

"Also, there is little convincing evidence that copper is causally associated with the development of cancer in humans."

In my prior research, I remember they gave rats extremely high doses of copper. None died of cancer. None of the people reported to take suicidally high doses of copper ever die from cancer either, it's usually acute liver and kidney failure.

A search for "cancer patients taking copper sulfate" yielded:

The use of copper sulfate in the treatment of esophageal cancer

https://pubmed.ncbi.nlm.nih.gov/10626443/

"The incidence of complete regression of the tumor came up to 43.3%, partial one to 53.3%, stabilization to 3.3%."

SULPHATE OF COPPER IN THE TREATMENT OF CANCER

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(01)20351-1/fulltext

Influence of Ascorbic Acid, Zinc, Iron, Sucrose and Fructose on Copper Status

https://link.springer.com/chapter/10.1007/978-1-4613-0537-8_3

"Numerous physiological functions for Cu have been firmly established (Danks, 1988) and roles for Cu in the prevention of cardiovascular disease (Kopp et al., 1983) and cancer (Beach et al., 1982; Greene et al., 1987) have been proposed. Although it is unequivocal that Cu is an essential nutrient, the dietary Cu requirement for humans is still under investigation."

The many “faces” of copper in medicine and treatment

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4113679/

"Copper(II) complexes containing Schiff bases derived from S-benzylidene thiocarbamates and

saccharinate showed anticancer properties (Katwal et al. 2013). These complexes have been active against the leukemic cell line HL-60 and the activities being higher than the Doxorubicin. Isatin-Schiff base copper(II) complexes possessed pro-apoptotic activity. Copper complex with mixed ligands such as: phenanthroline or 2,2′-bipyridine and acetylacetonate or glycinate are known as cassiopeinas. They exhibit significant antineoplastic activity in vitro and in vivo, against variety of tumor cell lines (Ferreza et al. 2010)."

So, once again, they are lying about copper causing cancer. This has never been seen. In fact, copper cures cancer, and this has been shown.

What is interesting is that they are claiming that copper causes the disease that it helps to cure. Well. Is that true? I don't think so. What do you think?

Copper and Zinc are needed to make the copper/zinc enzyme, superoxide-dismutase, or SOD.

SOD helps cure cancer.

https://draxe.com/nutrition/superoxide-dismutase/#Benefits

"--Helps Fight Cancer

Recent research shows that there's a significant association of low extracellular superoxide dismutase expression with reduced cancer patient survival. This suggests that low SOD levels promote an internal environment that favors cancer progression.

A study published in Free Radical Biology & Medicine indicates that high levels of SOD inhibit tumor growth and metastasis, indicating its role as a tumor suppressor."

You now know more about how copper cures cancer than most oncologists.

CHAPTER 48: MEDICAL ERRORS & ACCIDENTS

The Medical Establishment continues to lose credibility with anyone paying attention, and who can look things up, and has friends who share such information, in this age of information.

The Third Rail: Medical Error as a Leading Cause of Death, 2018

https://www.physiciansweekly.com/the-third-rail-medical-error-as-a-leading-cause-of-death

Medical Errors should be listed around 4th on the CDC's top ten list. Maybe they are listed, such as, if people are given ten to 100 times more medicine than prescribed, and they die of a heart attack, they are simply listed under "heart attack". Who knows. Either way, the medical establishment is covering this up.

My point is that errors happen when medical staff is not thinking clearly. Copper and iodine help people to think more clearly.

Errors also happen when people are overworked.

Why are staff overworked when they pay nurses over $80,000 per year and charge patients up to $5000 per night for a bed? It's simple. Greed.

Why not advise staff to take nearly free copper to clarify their thinking? I believe it is ignorance. Or if they know better, is it fear? Maybe if people thought more clearly, they would reject the business model of attempting to poison people with prescription drugs as a means to get them healthy.

Maybe poisoning people via prescription medicines is the real medical error.

Accidents (Unintentional Injuries)

This should be a separate chapter from Medical Errors. But the overall solution is the same and I don't want a two line chapter. More copper means better thinking.

Remember, copper helps the nerves in at least 15 ways. Perhaps if people had enough copper, they would be thinking more clearly, have better coordination, be thinking more clearly, and there would be fewer accidents.

Maybe, as people enter hospitals, instead of giving them saline salt, they should give everyone the copper salt known as copper sulfate, also?

CHAPTER 49: SEPSIS (BLOOD INFECTIONS)

I know of many minerals that are neglected by the establishment that are all strongly antibiotic. Iodine and Colloidal silver are among the top two natural antibiotics that are championed in the community of people who look for alternatives to western medicine. Boron is also antibiotic. Zinc is well known as an antibiotic, and immune booster.

We will be looking at copper's role as an immune booster, and antibiotic, and for its use in infections.

As we have already seen, a classic sign of copper deficiency is reduced white blood cells, called neutropenia. Neutrophils are the most common and abundant type of white blood cells.

Another sign of copper deficiency is increased infections. Of course, low neutrophils also increase infections.

"Nutrient deficiencies (Copper, Zinc, Iron, Magnesium) among children with SIRS/sepsis-a hospital based cross sectional study"

https://www.ijpediatrics.com/index.php/ijcp/article/view/640

"Hospital acquired infections were higher with zinc (P=0.001) and copper deficiency(P=0.002)."

Since the medical establishment often overlooks copper deficiency, it may be better to search for "neutropenia sepsis" or "low neutrophils sepsis".

Sure enough, there is a "Neutropenic sepsis".

Despite low white blood cell count being a classic sign of copper deficiency, it is "rarely considered":

Copper Deficiency Masked by Critical Illness Neuropathy

https://www.atsjournals.org/doi/pdf/10.1164/ajrccm-conference.2020.201.1_MeetingAbstracts.A5164

"[Copper deficiency] is rarely considered in patients with poor course of recovery from critical Illness neuropathy or as a cause of immunological anergy in patients with sepsis. Copper deficiency could pose an additional factor of immunological impairment to clear infections in sepsis and it should be considered in patients with critical illness polyneuropathy without significant improvement after intensive rehabilitation. This case highlights the importance of considering copper deficiency in patients with critical illness neuropathy and recurrent infections that do not improve despite intensive treatment of these conditions."

While there are other mineral antibiotics, as I listed, I do not think they are associated with increased white blood cell count.

Copper creates increased white blood cell counts, and copper itself kills germs on contact.

Thus, copper is likely the most powerful mineral antibiotic of all.

You now know more about how copper cures infections than most Infectiologists who "rarely consider" copper.

CHAPTER 50: CHRONIC LOWER RESPIRATORY DISEASES

https://www.dcnutrition.com/minerals/copper-cu/

"Copper also serves as a cofactor of a protein in the blood that helps maintain lung tissue and prevent emphysema"

(Low SOD activity has been linked to lung diseases such as Acute Respiratory Distress Syndrome (ARDS) or Chronic obstructive pulmonary disease (COPD))

SOD is a major detox enzyme. Copper also helps make other detoxing enzymes, metallothionein, ceruloplasmin, and others.

The lungs are major detox organs. People often cough when their bodies need to expel toxins.

https://www.nature.com/articles/1602209

"Copper is also necessary in the diet to prevent inflammation (Denko, 1979) and emphysema in animal models (O'Dell et al, 1978), as well as reducing the adverse effects of maternal nicotine exposure on lung development in rats (Maritz & Windvogel, 2003), and so may also have a protective effect against COPD."

Copper also lowers inflammation.

Copper is needed for cellular respiration.

Copper also is said again and again to help with oxidation processes, as it can both bind to oxygen, (becoming a copper oxide), and let the oxygen go as copper is bound to something else, and yet also act as an antioxidant.

SOD, helping the body detox, is helpful for the lungs, as the lungs often become congested as the body attempts to expel toxins through lung mucus. A cleaner detoxed body would therefore have less lung congestion.

Lungs often get infected. As we saw previously, since copper increases white blood cell counts, and copper kills germs on contact, copper is great for infections, and lung infections.

Two of my testimonials are from people who noted less coughing after taking copper.

See the chapter: High iron causes Lung Diseases

See also the chapter: Chapter: Influenza and Pneumonia

You now know more about how copper helps the lungs than most pulmonologists.

CHAPTER 51: STROKE (CEREBROVASCULAR DISEASES)

https://www.mayoclinic.org/diseases-conditions/stroke/symptoms-causes/syc-20350113

Causes

There are two main causes of stroke: a blocked artery (ischemic stroke) or leaking or bursting of a blood vessel (hemorrhagic stroke).

Copper fixes both problems.

1. Copper reduces blood clotting factor VIII, which causes internal blood clots. And yet, copper also helps to stop bleeding by improving blood clotting ability by increasing other blood clotting factors. 2. And copper helps make stronger collagen, which strengthens blood vessel walls, preventing them from beginning to bleed in the first place.

Stokes are from poor blood circulation. Copper is excellent for blood circulation in many ways, as we have already covered, here is a review, from chapter 1, see also the chapter on heart disease:

Heart & Circulatory System:

better formed blood cells, more blood cells, curing copper deficiency induced anemia

More neutrophils, white blood cells

Clearing out cholesterol from the blood vessels, improving circulation

Moving calcium from the soft tissues into the bones, improving circulation

(Hardening of the arteries is a combination of cholesterol and calcium).

Growing new capillaries, improving circulation

Strengthening blood vessel walls (collagen)

Preventing spider and varicose veins, improving circulation

Stopping bleeding from blood vessel walls, which are a main cause of "cholesterol/calcium" deposits.

Preventing aneurysms, weakened and burst blood vessels (better collagen)

Stronger heart, improving circulation

Less internal blood clots from reduced Clotting factor VIII & better blood clotting when bleeds are exposed to air.

You now know more about how copper prevents strokes than most vascular neurologists.

CHAPTER 52: ALZHEIMER'S DISEASE

It is said that copper both causes and cures Alzheimer's Disease. Which is it?

Those who claim that copper causes Alzheimer's Disease have one proposed mechanism of action. Copper is "linked" or "associated" with amyloid plaques in the brain, which are in people with Alzheimer's Disease.

Copper has also been shown to be good for the nerves in about 15 different mechanisms of action. See chapter 1.

What are amyloids, supposedly linked with copper, supposedly the cause of Alzheimer's?

https://www.mayoclinic.org/diseases-conditions/amyloidosis/symptoms-causes/syc-20353178

"Amyloidosis (am-uh-loi-DO-sis) is a rare disease that occurs when an abnormal protein, called amyloid, builds up in your organs and interferes with their normal function."

Amyloids are malformed proteins.

Copper is associated with about half of all proteins and is essential for forming proteins.

But copper deficiency is associated with malformed proteins.

I note that those who propose that copper is "linked with" Alzheimer's never seem to blame things that are known neurotoxins that have really been shown to be the causes of Alzheimer's disease: mercury, aluminum, fluoride, manganese, lead, and other neurotoxins.

The EPA states: "Mercury is a Neurotoxin"

https://www.epa.gov/mercury/health-effects-exposures-mercury

Aluminum is a neurotoxin:

https://pubmed.ncbi.nlm.nih.gov/2198876/

Developmental fluoride neurotoxicity: an updated review

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6923889/

--yet fluoride accumulates over time; it should be worse in those who are older!

The Neurotoxic Effects of Manganese on Dopamine Post-Synaptic Receptors Are Reversed by p-Aminosalicylic Acid (PAS)

https://faseb.onlinelibrary.wiley.com/doi/abs/10.1096/fasebj.30.1_supplement.705.4#:~:text=Mar

Neurotoxic Effects and Biomarkers of Lead Exposure: A Review
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2858639/

Other known neurotoxins:
https://bebrainfit.com/neurotoxins-foods/

aspartame (sugar substitute in diet sodas), alcohol, DIACETYL (in buttered flavored popcorn), and there are thousands of other neurotoxins.

I find that those trying to call copper a neurotoxin never mention the others, which is an example of hiding the truth on purpose, and that calls their credibility into question. Furthermore, they never seem to be aware of copper's many roles in the health of nerves, either. That's two lies by omission. Or is it incompetence? Either way, I don't listen to liars or the incompetent.

So, again, they are wrong in multiple ways. Copper could be "associated with" amyloids as the body attempts to heal them.

They utterly fail to understand that copper detoxes the other toxins responsible for Alzheimer's!

This means they are very, very, very wrong in claiming that copper causes Alzheimer's.

Once again, they blame copper for causing the thing that a vast body of real science demonstrates that copper should heal, and fail to mention the real causes. This appears to be a common theme. Once again, it appears they have a fraudulent mechanism of action, that copper causes bad protein formation.

Once again, they have never given copper to old people, compared to controls, and watched those who supplemented with copper then develop Alzheimer's. No, all they have is bad hypotheticals, that is contradicted by the real science on what copper actually does.

There is one study that is sometimes quoted as saying people who took the most copper had the highest rate of cognitive decline. However, this was not what the study concluded. Copper intake had no effect in people who did not eat trans fats, which are hydrogenated fats, like margarine, which are a real cause of cognitive decline.

Dietary Copper and High Saturated and trans Fat Intakes Associated With Cognitive Decline
https://jamanetwork.com/journals/jamaneurology/fullarticle/792043

"Copper intake was not associated with cognitive change among persons whose diets were not high in these fats."

But trans fats, alone, are already associated with Alzheimer's.

Trans Fats, Bad for the Heart, May Be Bad for the Brain as Well (2009)
https://www.nytimes.com/2019/10/23/well/eat/trans-fats-dementia-alzheimers-brain-heart.html

And was it even "high copper"? No, it was not. It was only 3 mg of copper in the study, which is not very high. 3 mg is the standard dose for copper supplements, and well below the fraudulently low 10 mg tolerable upper limit.

This is what they do. They pair low copper with a known toxin, then blame copper, instead of the known toxin! Maybe the relatively LOW copper was not enough to offset the damage of the trans fats, and an actual high copper could have done so? We don't know, because they did not study high copper, they studied low copper (falsely calling it high copper) and even lower copper.

Look at how this study was mischaracterized by a person who cited it, here:

ALZHEIMER'S DISEASE IS, AT LEAST IN PART, A COPPER-2 TOXICITY DISEASE

https://www.jarlife.net/1538-alzheimers-disease-is-at-least-in-part-a-copper-2-toxicity-disease.html

"This is extraordinary! Ingesting a pill containing copper rapidly damages cognition, and many Americans, and others in developed countries, take these multimineral pills every day."

Note, that was exactly the opposite of what the study concluded when they wrote, as I quoted above: "Copper intake [up to 3 mg] was not associated with cognitive change among persons whose diets were not high in these fats."

Note, they are also falsely blaming a form of copper, "copper-2".

Admittedly, what needs explaining is why 3 mg of copper plus trans fats, was supposedly worse than trans fats alone. As the writer and researcher for this book, I might be expected to have an answer for that. I have a proposed answer, from what I know about what copper does. Copper encourages growth. Copper facilitates nerve healing. Copper helps make the myelin sheath. I would suppose that in the presence of copper, more bad trans fats become incorporated into the myelin sheath. When more bad fats become a part of the brain, then more damage from trans fats takes place.

I believe this is another example of the danger of trying to live on both sides of the fence, or to try to do both good things and bad things at the same time, or trying to take your vitamins and minerals, but not have a good diet elsewhere. This is also the danger of trying to take toxic medicines and taking vitamins and minerals at the same time. Often, the normal rate of detox in a normal person is not a problem when adding in poisons. But if a person's metabolism is faster, then adding poisons can overwhelm the detox organs because detox might take place at a faster rate, which concentrates the poisons even more, which can overwhelm the kidneys if so much poison is processed too quickly all at once.

This is also why people should start taking new minerals slowly. In the beginning, there are often more toxins to remove than after a period of adjustment, when more of the toxins have already been processed.

And again, we already know copper is great for nerves.

Other studies suggest it is "copper in drinking water" that is the problem, and again, they study very low copper in such cases. Well, the problem with drinking water is that it is often saturated with fluoride, chlorine, and many other toxins. When they study very low copper in drinking water, and then blame "copper", they are actually studying "copper deficiency plus toxins" and then try to blame copper! It's absurd. Copper in "drinking water" or "tap water" has no bearing on copper supplements taken with the cleanest form of water, distilled water.

Copper is vital for nerve and brain function.

Copper helps brain function — could tweaking circuits make us smarter?

https://source.wustl.edu/2006/09/copper-helps-brain-function-could-tweaking-circuits-make-us-smarter/

"The researchers' findings suggest that copper and its transporter, a protein called Atp7a, are vital to human thinking."

I continued searching for a study where they gave copper to people with Alzheimer's. I finally found one.

They found that 8 mg (a good amount) of copper (orotate - possibly a bad form) per day, given to Alzheimer's patients, showed no effect, either positive or negative.

Intake of copper has no effect on cognition in patients with mild Alzheimer's disease: a pilot phase 2 clinical trial

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2516533/

"In the present report, we evaluated the efficacy of oral Cu supplementation in the treatment of AD in a prospective, randomized, double-blind, placebo-controlled phase 2 clinical trial in patients with mild AD for 12 months. Sixty-eight subjects were randomized. The treatment was well-tolerated. There were however no significant differences in primary outcome measures (Alzheimer's Disease Assessment Scale, Cognitive subscale, Mini Mental Status Examination) between the verum [Cu-(II)-orotate-dihydrate; 8 mg Cu daily] and the placebo group."

Note: they gave copper orotate dihydrate.

What is orotate?

https://en.wikipedia.org/wiki/Orotic_acid

"decreasing adenosine triphosphate (ATP) production"

That could explain things. Copper increases ATP, but not copper orotate.

A quick search at amazon.com shows no results for "copper orotate" supplements. This is what they do. They study an "unknown" copper form, and then blame copper in general, or blame

copper supplements in general.

The most popular form of copper used in supplements at amazon.com is copper bisglycinate or copper glycinate. I have found that is an effective form of copper, and so is copper sulfate. Why did they not study either of the other two popular copper supplement forms?

You now know more about how copper would help prevent and heal Alzheimer's disease, and all kinds of nerve problems, than most neurologists.

CHAPTER 53: PRESCRIPTION DRUG DEATHS

It has been said for a long time, by the medical establishment itself, that at least 100,000 people die from prescription drugs, properly prescribed, and properly taken.

My view has changed. If medical conditions can be healed with vitamins and minerals, then are any drugs "properly prescribed"? Maybe not.

If the Bible defines pharmakia as taking poisonous drugs as an attempt to heal, and is translated as witchcraft and sorcery, which it condemns, then can any drugs be said to be "properly prescribed"? No.

This means "properly prescribed" means as according to the methods the doctors say. In other words, these are deaths doctors admit they cause by their methods.

If people took minerals, instead of medicine, would we see fewer deaths? I think so. Many of the medical establishment, and their minions, claim falsely the opposite, that it is dangerous to try to avoid medicines in an attempt to take vitamins and minerals. But where is the evidence for that?

In contrast, nobody ever dies from vitamins or minerals. Yes, overdoses, maybe, if people are trying to kill themselves with 20,000 mg of copper, but this is generally fewer than 5 per year from these methods, and people trying to use vitamins and minerals as a method of suicide usually fail.

It is said that up to 50,000 people died from heart attacks, from taking the arthritis drug, VIOXX, which was recalled. But what if people with arthritis are just suffering from copper and boron deficiency? Copper, as another effect, reduces heart attack risk, unlike the VIOXX.

Most people are suffering from multiple conditions at once. Copper deficiency causes multiple conditions at once. Often people have peripheral neuropathy (copper deficiency), heart disease (copper deficiency), diabetes, (copper deficiency), and arthritis (copper deficiency).

Wouldn't it be malpractice if not outright fraud to prescribe poisons, and not copper, if people are simply suffering from copper deficiency?

Is it superior to put people on peripheral neuropathy drugs, heart disease drugs, diabetes drugs, and arthritis drugs, instead of just copper? I simply reply, prove it.

CHAPTER 54: THE FLU: INFLUENZA AND PNEUMONIA

Due to the political climate, I make no claims about copper and Covid 19. However, copper is an antiviral, it boosts white blood cells, and boosts the immune system, is good for the lungs, and is necessary for oxygen respiration at the cellular level, and prevents thrombosis, or blood clotting internally, by lowering clotting factor VIII. That's 6 things that seem appropriate for the flu.

I feel that I can speak of my own experience. In July, 2021, my wife and I both got sick around the same time with what we felt was the flu. At first, I loaded up on Vitamin C. I didn't realize that was lowering my copper. When we both finally took copper and zinc with grapefruit juice, which helps the body absorb copper and zinc better, we felt much better almost immediately.

Copper as a potential adjunct therapy for critically ill COVID-19 patients

https://pubmed.ncbi.nlm.nih.gov/33183578/

"Copper plays an essential role in respiration, immune function and free-radical defense. ... Recent studies confirmed its anti-viral capacity."

Resveratrol and Copper for treatment of severe COVID-19:

an observational study (RESCU 002)

https://www.medrxiv.org/content/10.1101/2020.07.21.20151423v1.full.pdf

"The nearly two-fold reduction in mortality with resveratrol-copper observed in our study needs to be confirmed in a randomized controlled trial."

COVID-19 Therapy: Could a Copper Derivative of Chlorophyll a Be Used to Treat Lymphopenia Associated With Severe Symptoms of SARS-CoV-2 Infection?

https://www.frontiersin.org/articles/10.3389/fmed.2021.620175/full

"Therapeutic doses of SCC have been demonstrated to provide an effective clinical treatment for leukopenia. On this basis, we propose that taking Sodium Copper Chlorophyllin (SCC) at the onset of symptoms or, for immunocompromised patients, at the time of diagnosis, could reverse the lymphopenia (low white blood cell count) observed during COVID-19."

The official list of Covid Symptoms reads, to me, as a list of copper deficiency symptoms. Unofficial lists of side effects from the shots, read, to me, as a list of copper deficiency symptoms. See also, chapter 50 on lung disease.

CHAPTER 55: DRUG OVERDOSES

There are two kinds. Legal and illegal. Legal does not mean moral.

The Bible says pharmakia is a deception to mankind at the end of Revelation 18. Now we know why. Most drugs cause nerve damage and brain damage. When people are brain-damaged, they are more easily deceived.

What I find interesting is that the pushers of these "deceiving drugs" warn about the supposed dangers of copper. Their warnings are inauthentic. They push poisons with many known dangers.

Why is the upper limit for copper in the "no liver damage" range? Why not at least in the range of "damage comparable to that caused by aspirin/ibuprofen/Tylenol"? They have not even determined such a range for copper! Because maybe copper detoxes and cures liver damage, and only causes liver damage if you take 20,000 mg of copper all at once!

They have no moral standing to warn of the dangers of copper, while pushing deadly pharmaceuticals.

I have to ask, would people be dying of overdoses of pain killers, both legal and illegal, if they just took copper, properly healed themselves, and were out of pain?

One of the hardest things for me to see, as it makes my heart weep, are the people in Facebook groups who are severely copper-deficient and or people with painful peripheral neuropathy. Their pain is incredible. And they are often on painkillers. But being on painkillers, and copper deficient, they have limited mental function. They don't read group posts, they barely read answers to their own posts. I can't post a link to a book in every post, things like that get removed for spam, and/or I get blocked. And when I try to post about copper, I'm the lone nutter, and they can't hear, and/or my information gets censored, or others join in and say copper is dangerous. And pain killers are not? People trust doctors. Or maybe the copper bashers are part of the mob of people censoring information online? It's odd. People will trust doctors, but not the doctors who do all the hard research on copper? These people in pain, and the haters of copper, have no consistent rational basis for understanding anything.

I'm not perfect. I used to live on alcohol and painkillers, and while I was doing that, my arthritis got steadily worse. After curing my arthritis, my pain is essentially gone. I've never been more pain-free. Copper is a huge part of my success. My chapter on copper in my arthritis book was the longest chapter: 27 pages. Now there is this book.

Street Drugs nearly universally activate the dopamine release into the pleasure center of the brain. Maybe people who are seeking drugs really just need more dopamine from more copper? Again, most people are copper deficient.

Copper is a detoxer.

Drugs, both legal and illegal are toxins.

Detoxers tend to be used up when used to detox. They bind to toxins to carry them out. Thus, nearly all forms of drugs, would naturally lower copper.

I admit that copper does make me feel good. I know that is not proof that copper is actually good. Because alcohol and drugs can also make you "feel good". But copper does not cause a "crash" later, and my health continues to improve.

CHAPTER 56: DIABETES

I failed to remember that diabetes is a disease of copper deficiency when I started writing this book. This one jumps out at me. I am surprised. I'm thinking, "Really? Copper heals, diabetes, too?"

I have already quoted about 5-7 other people who mention that copper deficiency is associated with diabetes in the writing of this book.

As an aside, iodine also cures diabetes. Half of the participants in the iodine protocols naturally weaned themselves off of insulin. Copper appears to be the other big mineral for diabetes. Another is chromium.

Further evidence that copper helps diabetics. In the historic uses for copper, they used to put powdered malachite, (copper carbonate) into leg ulcers. Today, we know that leg ulcers are a complication of diabetes.

These ulcers are open wounds. Copper stops bleeding. Copper helps wound healing.

Ulcers are linked with infections. Copper cures infections.

Ulcers are lack of growth of new tissue. Copper helps tissue grow. Copper boosts DHEA, a master hormone, associated with growth hormone.

Diabetes & Hypertension (high blood pressure):

https://www.ncbi.nlm.nih.gov/books/NBK225399/

"A number of disease conditions, including diabetes and hypertension, are associated with low extrahepatic-tissue copper concentrations."

Sugar harms copper in two ways. First, it contains no copper. Second, it blocks copper absorption.

It appears to be more commonly agreed that diabetes is a lifestyle disease of excess sugar consumption.

https://en.wikipedia.org/wiki/Copper_in_health

"[26] Elevated levels of dietary zinc, as well as cadmium, high intakes of phytate and simple sugars (fructose, sucrose) inhibit dietary absorption of copper.[27][28][29][30][31][32]"

27-32, that is 6 Sources say sugar inhibits the absorption of copper. So. Excess sugar is the cause of copper deficiency that causes diabetes.

Similarly, excess dietary cholesterol can block copper. So excess dietary cholesterol is the cause of copper deficiency that causes heart disease.

This could help explain why copper deficiency has such widely diverse expressions of disease. And again, these diseases often overlap, as in my own experience, many people have both heart conditions and diabetes at once.

I think there is a better solution than never eating beef, or never eating sugar. I eat both. Instead, I just supplement with enough copper that actually relieves obvious copper deficiency symptoms, and makes me feel great.

From memory, I now recall that copper helps the body become more sensitive to insulin again.

My good friend came to visit me. I encouraged him to take copper. The next day, he felt horrible. He quickly identified it as low blood sugar. He ate some snacks and felt better right away. This was copper healing him, kind of like how too much insulin causes too low blood sugar.

You now know more about how copper (and iodine) cures and prevents diabetes than most endocrinologists.

CHAPTER 57: NEPHRITIS, NEPHROTIC SYNDROME, AND NEPHROSIS

Nephritis - "A condition in which the tissues in the kidney become inflamed and have problems filtering waste from the blood."

Nephrotic syndrome / nephrosis - "kidney disease, especially when characterized by edema and the loss of protein from the plasma into the urine due to increased glomerular permeability"

Copper is an anti-inflammatory. Copper is good for the kidneys, and copper deficiency is not good for the kidneys.

Copper only becomes toxic to the kidneys in cases of suicide by copper sulfate, at doses up to 20,000 mg.

So, the key question then, is copper toxic to the kidneys at normal levels, or only at very high levels?

What about copper deficiency and kidney disease?

What does copper do for the rest of the body? What body part would not benefit from better nerves, better blood supply, and better hormone production?

Here are 5 sources saying copper deficiency is implicated in kidney disease:

https://www.uhhospitals.org/health-information/health-and-wellness-library/article/lab-tests-v1/total-copper-blood

"A low amount of copper could mean that you have: Kidney disease"

Selected Nutrients for Kidney Health

https://www.myprorenal.com/kidney-health/limited-nutrients/

"Trace Elements

Decreased levels of the trace elements, copper, zinc and selenium, are often found in patients with kidney disease and those on dialysis.... kidney patients should have adequate amounts of trace minerals as delineated by the KDOQI Guidelines."

Evaluation of serum Zinc and Copper in children with chronic kidney disease

https://www.researchgate.net/publication/236942653_Evaluation_of_serum_Zinc_and_Copper_i

Kids with kidney disease had the lowest copper levels, group A: "As regard Cu level it was

(89.3 ± 15.1 µg/dL) in group A,

(95.6 ± 16.2 µg/dL) in group B, while it was

(116.6 ± 13.6 µg/dL) in group C which is significantly higher than in children with CKD ($p < 0.05$)."

Copper deficiency in kidney patients:

https://archive.kidneynews.org/kidney-news/findings/copper-deficiency-plays-role-in-cysteamine-toxicity

11 Amazing Healing Benefits of Drinking Water in a Copper Vessel

https://food.ndtv.com/health/12-amazing-healing-benefits-of-drinking-water-in-a-copper-vessel-1658134

"Copper has properties that help kill harmful bacteria and reduce inflammation within the stomach, making it a great remedy for ulcers, indigestion and infections. Copper also helps cleanse and detox your stomach, regulates the working of your liver and kidneys, and proper elimination of waste and ensures the absorption of nutrients from food."

Which is the cause, which is the effect? Does low copper cause kidney disease, or does kidney disease cause low copper?

Many times, kidney disease is caused by diabetes. And what is diabetes caused by? Class? Anyone? That's right. Copper deficiency!

Diabetes - A Major Risk Factor for Kidney Disease

https://www.kidney.org/atoz/content/diabetes

"About 30 percent of patients with Type 1 (juvenile onset) diabetes and 10 to 40 percent of those with Type 2 (adult onset) diabetes eventually will suffer from kidney failure."

Other causes of kidney disease:

https://www.mayoclinic.org/diseases-conditions/chronic-kidney-disease/symptoms-causes/syc-20354521

"Diseases and conditions that cause chronic kidney disease include:

"--Type 1 or type 2 diabetes

--High blood pressure

--Glomerulonephritis (gloe-mer-u-low-nuh-FRY-tis), an inflammation of the kidney's filtering units (glomeruli)

--Interstitial nephritis (in-tur-STISH-ul nuh-FRY-tis), an inflammation of the kidney's tubules and surrounding structures

--Polycystic kidney disease or other inherited kidney diseases

--Prolonged obstruction of the urinary tract, from conditions such as enlarged prostate, kidney stones and some cancers

--Vesicoureteral (ves-ih-koe-yoo-REE-tur-ul) reflux, a condition that causes urine to back up into your kidneys

--Recurrent kidney infection, also called pyelonephritis (pie-uh-low-nuh-FRY-tis)"

I count 6 or 7 out of 8 causes of kidney disease listed by the Mayo Clinic as copper deficiency symptoms. Maybe more, I just don't know for sure on inherited, which might be copper deficiency, which can also be inherited, and I just don't know on vesicoureteral reflux.

Furthermore, kidneys are major detox organs. Copper is the major detox mineral, as copper is needed to make at least 5 detoxing enzymes.

Once again, in just a few pages... you now know more than most nephrologists about how copper cures and prevents kidney damage.

CHAPTER 58: INTENTIONAL SELF-HARM (SUICIDE)

Copper boosts neurotransmitters and acts as an antidepressant. Other good antidepressants are the B complex vitamins, Magnesium, and iodine.

Half of all antidepressant prescription poisons are neurotoxic fluoride poisons.

How can copper, which heals the nerves, be more dangerous than neurotoxic fluorides?

I was a psych major. I have battled depression. I went to rehab. I battled suicidal thoughts. I have overcome.

The things that helped me the most were iodine and copper.

I have two articles on depression. I know copper helps, but it is also important to know what does not help, and cannot help.

Medical doctors kill themselves at significantly higher rates than the general public. Therefore, they cannot help. And there is no evidence that their methods help; it is the opposite. They prescribe neurotoxic substances for nerve problems. That is insane. You cannot look to insane people to help with problems of insanity. You have to look to sane people.

https://revealingfraud.com/2018/03/health/the-suicide-awareness-note/

Is a basic and appropriate human emotion, such as depression, even a disease? Of course not. It is appropriate to be angry when you are abused. Depression and suicidal thoughts are often just anger at others, turned inward because most people are good enough to not really want to take revenge and hurt others. Or maybe the abuser has more physical or monetary power. So where else does the hurt get directed? Inwards.

https://revealingfraud.com/2021/10/health/depression-a-sign-of-blessing/

I have learned to try to be forgiving of myself, most of all.

The Bible says to love others as you love yourself. You cannot love others unless you first love yourself.

Sometimes, when people take copper, what happens is that they no longer tolerate abuse, because they see it far more clearly, and they feel strong enough mentally to stand on their own.

Psychologists and therapy are almost worthless, and harmful if they prescribe neurotoxins.

Copper is cheap and effective.

In my own experience, transforming my depression with iodine, boron, and copper, there is a period of anxiety during the process of stirring up and detoxing fluoride. And I have seen this in my wife also. If it hits, try more of the good things, the good minerals, sunshine, exercise, rest, time. Which mineral did you forget to take lately? Take it. Maybe try a bit more. It will get better. Hang in there. Detoxing and remineralizing also takes time. Keep going.

CHAPTER 59: LIVER DISEASE

Copper was a historic cure for liver disease.

The highest copper food is liver. Liver contains 64 mg of copper per pound. Eating liver should naturally be good for the liver. It follows that copper is good for the liver.

Admittedly, copper at 20,000 mg can be hard on the liver. This has no bearing on whether copper is dangerous at 50 to 100 milligrams.

Copper concentrates in the liver, but only about 10% of the body's copper goes to the liver. Copper has a wide array of healing properties and is necessary for every cell in the human body. The liver should thus be especially healthy, in the presence of healthy copper levels.

Just as boron concentrates in the parathyroid gland to make a hormone that helps the body retain calcium and magnesium and is good for the parathyroid gland...

Just as iodine concentrates in the thyroid gland to make thyroid hormones...

Copper concentrates in the liver to form copper enzymes, such as ceruloplasmin, that do things such as transport copper around the body.

Hepatic Iron Overload or Cirrhosis May Occur in Acquired Copper Deficiency and Is Likely Mediated by Hypoceruloplasminemia

https://pubmed.ncbi.nlm.nih.gov/20502350/

“Conclusions: Acquired copper deficiency causes a secondary ceruloplasmin deficiency which can result in hepatic iron overload and/or cirrhosis.”

Copper Deficiency in Liver Diseases: A Case Series and Pathophysiological Considerations

https://aasldpubs.onlinelibrary.wiley.com/doi/full/10.1002/hep4.1393

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6671688/

In 12 cases of copper deficiency seen along with liver damage, they gave 3 people copper supplements. And it was only 2 mg copper per day. 2 recovered liver function, the third improved serum copper.

"Cases 4 and 11 recovered following intensive nutritional support, including copper supplementation, with subsequent normalization of hepatic synthetic function. Case 4, who underwent Roux-en-Y gastric bypass surgery 18 months before presentation, was supplemented with IV copper, 2 mg per day, as part of her parenteral nutrition for 3 months. Her serum copper was not repeated, but her serum ceruloplasmin improved from 11 mg/dL at initial presentation to

17 mg/dL after supplementation. Her liver function normalized and remained stable 3 months after parenteral nutrition was stopped. Case 11, who had inactive ileocolonic Crohn's disease and distant history of ileum and right colon resection, was supplemented with oral copper 2 mg daily for 1 year with improvement of her serum copper (41 to 94 μg/dL), ceruloplasmin (16 to 23 mg/dL), and albumin concentrations (1.9 to 3.5 g/dL). In case 10, who presented with acute-on-chronic liver failure 12 years after Roux-en-Y gastric bypass, oral copper 2 mg over a 3-week period improved serum copper from 36 to 60 μg/dL. The patient, however, died of fungal sepsis and multi-organ failure. Copper was not supplemented in any other cases."

Most liver Disease is from Hepatitis C. That is a viral infection. Copper is antiviral. Copper cures infections.

Is copper metabolism involved in fatty liver disease?

30-Oct-2017 By Tim Cutcliffe

https://www.nutraingredients.com/Article/2017/10/30/Is-copper-metabolism-involved-in-fatty-liver-disease#

"Disrupted copper metabolism may be linked to progression of non-alcoholic fatty liver disease (NAFLD), suggests a recent review in Nutrients."

Several other articles that I have previously shared in this book also show that nonalcoholic fatty liver disease is from copper deficiency.

Copper deficiency and nonalcoholic fatty liver disease

https://www.clinicalnutritionjournal.com/article/S0261-5614(21)00334-4/fulltext

"They concluded in this case–control study that high copper levels had a protective effect for NAFLD (liver disease) in men."

Why else would copper be good for the liver?

Copper helps make Super Oxide Dismutase, which helps to detoxify everything. The liver is a major detox organ. Toxins are hard on the liver.

Copper helps make at least 5 detox enzymes.

What is usually known to be very bad for the liver? Alcohol and pain killers.

In fact, pain killers are known for causing copper deficiency, and for being so hard on the liver, that the liver cannot process other toxins, which then build up, which are then even harder on the liver.

Pain killers also do their work by deactivating pain signals in the nerves, thus being bad for the nerves. What is good for the nerves? Copper.

What else causes pain? The build up of toxins in the body. So pain killers have a vicious cycle in the body by depleting copper, building up toxins, causing liver damage, and causing pain in the body. Then, being in pain, a person takes more painkillers, completing the destructive cycle of addiction.

Several times, I have read of a case study in which they blame copper for liver disease. If you read deeper into the study, there are usually other drugs involved, that are well known to cause liver disease. First, causation cannot be determined by a case study. Second, there has to be no other variables. It's non-science to say that copper causes liver disease.

How would copper even harm the liver in the first place, when the liver needs copper and has an affinity for copper?

From: https://www.pediatricweb.com/webpost/iframe/MedicalConditions_460.asp?tArticleId=142#9

"Copper may damage liver cells and other cells in the body by causing the formation of activated chemical intermediates."

That is exactly what I'm saying. Copper binds to fluoride, a toxin, and likely binds to other toxins. What other toxins might bind to copper?

If the body is loaded with toxins, and if the body's available copper is being used to bind those toxins, then the answer is more copper or other minerals that can detox the body, to flush out and chelate those toxins. Just not all at once, going from zero to 20,000 mg. That kills people sometimes. Death from copper in those ranges could be the detox reaction going too fast, rather than the copper itself, which could explain how people survive copper up to 100,000 mg.

And again, it is foolishness to blame copper, for the damage of other toxins, which copper detoxes.

CHAPTER 60: PARKINSON'S DISEASE & MULTIPLE SCLEROSIS & PERIPHERAL NEUROPATHY

Widespread Decreases in Cerebral Copper Are Common to Parkinson's Disease Dementia and Alzheimer's Disease Dementia

https://www.frontiersin.org/articles/10.3389/fnagi.2021.641222/full (2021)

Parkinson's disease sounds a lot like copper deficiency. I went looking for descriptions of Parkinson's, and I compiled the following list of their symptoms:

1. Nerve degeneration.
2. Demyelination of the nerves.
3. Low dopamine
4. Low nor-epinephrine
5. Cognitive decline
6. Depression
7. Loss of coordination.
8. Unsteady gait.
9. Tremors -- here and above, all nerve symptoms
10. Excessive sweating
11. Fatigue (adrenal)
12. Loss of sense of smell (low zinc)
13. Dehydration. (Copper helps hold onto salt)
14. Lightheadedness when standing up
15. Pain.

All of those are copper deficiency symptoms.

The vast majority of studies I can find on copper and Parkinson's only study blood levels and then speculate. The researchers have not extensively studied copper, nor do they know really what it can do. If they did know much about copper, they would realize that blood and tissue levels don't matter. They also appear to be terrified to do a real intervention study where they just give copper to people who need copper. Here is one study that speculates copper should help, so you can see it's not just my opinion.

Copper and Copper Proteins in Parkinson’s Disease

https://www.hindawi.com/journals/omcl/2014/147251/

"Regarding copper-related therapies, copper supplementation can represent a plausible alternative, while copper chelation may even aggravate the pathology."

Next, MS.

Multiple sclerosis is the most common demyelinating disease.

Depleting copper in mice induces Multiple Sclerosis

https://multiplesclerosisnewstoday.com/news-posts/2016/11/29/nih-grant-supports-multiple-sclerosis-study-into-copper-role-in-demyelination/

Next from https://www.dcnutrition.com/minerals/copper-cu/

COPPER DEFICIENCY AND MULTIPLE SCLEROSIS

Lead blocks copper. Swayback in animals is a copper deficiency.

Both Swayback and MS are nerve demyelination disorders fixed by copper.

Copper salts prevented swayback from demyelination (destruction of the fatty coating around nerve cells) in animals.

(A common copper salt is copper sulfate.)

Copper metabolism is impaired in Multiple Sclerosis:

Metals in Multiple Sclerosis: Improvement or Progression

https://juniperpublishers.com/gjn/pdf/GJN.MS.ID.555581.pdf

Ceruloplasmin, the copper transport protein is low in Multiple Sclerosis:

Copper and ceruloplasmin dyshomeostasis in serum and cerebrospinal fluid of multiple sclerosis subjects

https://www.sciencedirect.com/science/article/pii/S0925443918300875

Again, copper boosts ceruloplasmin. Other things also increase it: Vitamin A, exercise, copper and boron.

Often they try to measure copper in the blood. This does not work. Copper can be elevated in the blood as the body attempts to heal, because copper is a healing mineral. Copper in the blood is elevated in MS. But copper is elevated in the blood for infections, and copper heals infections, and it's like this with many diseases.

One study on the relation of copper and mercury found that when mercury was present (and

mercury is one of the worst toxins there is) mercury accumulated in the kidneys, and copper levels in the kidneys went up 7 times more, too.

This study was a questionnaire given to nurses about their nutritional intake. But as we have seen, only 15% of the population takes a multi-mineral supplement containing copper, and the copper supplementation levels average about 2 mg, which is far too low, and the multi-mineral pills also have many other minerals that would block copper, and multi-minerals are typically very poorly absorbed.

Nearly nobody does the obvious. If copper restores the myelin sheath, and if MS is a myelin sheath destruction disorder, then why not start giving copper in large enough doses to work, at doses that at least do not cause harm, such as 10-20 mg, and feed them liver, a lot of liver, so they can get even more copper? Nope, that's just too simple for most researchers, and I think the researchers know there is no money in "free cures".

Sometimes, knowing what I know makes me a bit angry. But it's better than ignorance.

Peripheral Neuropathy:

Copper Deficiency Induced Neuropathy: A Sticky Situation

https://journals.lww.com/ajg/fulltext/2009/10003/copper_deficiency_induced_neuropathy__a_sti

"Conclusion: Copper deficiency is a known cause of peripheral neuropathy. Acquired copper deficiency can be caused by gastrointestinal surgery, malabsorption, and nutritional deficiency. Zinc toxicity can also lead to hypocupremia although the exact etiology remains unknown."

The perfect storm: copper deficiency presenting as progressive peripheral neuropathy

https://www.ajemjournal.com/article/S0735-6757(15)00501-X/fulltext

Abstract

"A number of patients present to the emergency department (ED) with complaints of peripheral neuropathy. This case report highlights on an underrecognized etiology of progressive neuropathy in a woman who presented to our ED. Clinical signs, symptoms, as well as a high index of suspicion suggested copper deficiency. Hypocupremia manifests itself as a debilitating peripheral sensory and motor neuropathy, anemia, leukopenia, and abnormal red blood cell morphologies on a peripheral blood smear. Significant risk factors for the development of this illness include Roux-en-Y gastric bypass; excess zinc supplementation; and, in some instances, postmenopausal females. The article reviews pertinent literature."

Peripheral Neuropathy Due to Vitamin Deficiency, Toxins, and Medications

(and copper and B12 and other B vitamin deficiencies)

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4208100/

Peripheral Neuropathy is commonly said to be caused by diabetes. Which we know is from

copper deficiency.

And neurologists know nothing about copper compared to you.

CHAPTER 61: THE TOP 50 DRUGS PRESCRIBED IN THE UNITED STATES

In my chapter on Copper Antagonists, I listed "prescription drugs" as one item.

I intended to examine the drugs to see whether they caused copper deficiency. That turned out to be too difficult. There is so little data.

What really surprised me, however, was that each drug on the top 50 list appeared to target and fix what I saw were symptoms of copper deficiency.

https://www.healthgrades.com/right-care/patient-advocate/the-top-50-drugs-prescribed-in-the-united-states

Last Updated: September 5, 2019

Warning! It is best to not mix natural things, such as copper, with prescriptions, especially not when both have the same intended effect. I knew two people who were taking diuretics who then took green smoothies, which are natural diuretics, and ended up in the hospital for dehydration. Diuretics are intended to cause water loss, which leads to dehydration. I told each of them that greens were diuretics, but they did NOT tell me that they were taking diuretic medicines. The combination resulted in excessive fluid loss and dangerous levels of dehydration. It is not the natural substances that are dangerous. It is the prescriptions. Or doubling up. Know what you are doing, and do not double up. If you need help getting off drugs, consider Nancy Reagan's slogan "Just say no" and/or consider rehab. Or tell your doctor that you intend to try tapering off. Or taper off first, or during the taper, then slowly add very low, lower than normal, levels of minerals. Minerals, especially copper, which helps the body hold on to salt, are a good counterbalance to greens. The Romans used to put salt with their greens.

1. Atorvastatin

Atorvastatin treats high cholesterol. It is a member of the statins or HMG-CoA reductase inhibitor class. The class has been around for decades. Atorvastatin has gained on other drugs in the class since 2011. The brand name is Lipitor. Total prescriptions: 112,474,023.

As we already saw and will continue to see, copper lowers high cholesterol. It does this via several mechanisms of action. It converts the cholesterol into hormones your body wants to use. It helps remove calcium from being deposited in soft tissues such as the veins and puts it back into the bones. It strengthens blood vessels by improving collagen formation. It stops bleeding. It reduces internal clotting by lowering clotting factor VIII, responsible for internal blood clots. I can go on like this for each drug, but I will not do so. Because the mechanisms of action were already listed in this book, and to keep it short, I will sometimes just say... "copper!"

Additional note. I do not know what taking Atorvastatin and larger than 2 mg of copper would do. Some people claim that we need cholesterol and that cholesterol is good for us. What if you took 2 things to lower a needed thing? Bad things could happen. I am not claiming that copper is a drug. I'm saying I am not a doctor. Even if I studied a copper/Atorvastatin interaction, it would be far less information available than what is in this book, and there is extremely little information on what copper itself does above 20 mg. Therefore, I can almost say with my expertise on copper, that I'm fairly confident that there is literally nobody in the world who would know what taking 20+ mg of copper would do if you were also taking Atorvastatin. And it's like this will all the drugs, so I will not be repeating this warning.

2. Levothyroxine

Levothyroxine treats hypothyroidism. It is a synthetic version of the thyroid hormone T4. Brand names include Levothroid, Levoxyl, Synthroid and Unithroid. Over the last 10 years, levothyroxine has always landed in the top three prescription drugs. Total prescriptions: 105,773,990.

Levothyroxine works because the thyroid hormone T4 contains 4 iodine atoms. Why not just take iodine and the cofactors on the iodine protocol to help the body make hormones? Copper is one such key cofactor, along with zinc, and magnesium, B vitamins and Vitamin C. And copper is needed, along with iodine and selenium, to make both T4 and T3 thyroid hormones.

3. Lisinopril

Lisinopril is an ACE (angiotensin-converting enzyme) inhibitor. Doctors use it in the treatment of high blood pressure, heart failure, and following a heart attack. Brand names include Prinivil and Zestril. It has bumped back and forth between the first three spots over the last 10 years. Total prescriptions: 97,608,879.

As we have seen in the chapter on heart disease, copper is excellent for high blood pressure, heart failure, heart attacks, and heart disease.

4. Metformin

There are more than 34 million Americans with diabetes. So, it’s no surprise that metformin—a drug that treats type 2 diabetes—has consistently remained in the top 10 drugs. Brand names include Fortamet, Glucophage, Glumetza and Riomet. Total prescriptions: 83,762,981.

Diabetes is another copper deficiency disease. Iodine and chromium also work well for diabetes. So does fasting, working out, and eating less sugar and carbs. Detoxing is perhaps more important for diabetes than avoiding sugar. Copper is an excellent detoxer.

5. Amlodipine

Amlodipine is a calcium channel blocker. It treats high blood pressure and angina (chest pain). Since it became available as a generic drug in 2005, it has gained popularity and risen into the top 10 drugs. And out-of-pocket costs for the drug have gone down. The brand name is Norvasc. Total prescriptions: 75,811,947.

Again, copper for high blood pressure. Also, magnesium and exercise. There is a great book, "The High Blood Pressure Hoax" that makes the case that it is all just magnesium deficiency. And now, copper deficiency. And while I was in rehab, nearly everyone's blood pressure came down when they stopped using alcohol or other drugs of abuse, whether prescription or street drugs. We nearly all exercised.

6. Metoprolol

Metoprolol is a beta blocker. Doctors use it to treat high blood pressure, angina, heart failure, and following a heart attack. Metoprolol usage has remained fairly steady over the last decade. Brand names include Lopressor and Toprol XL. Total prescriptions: 71,581,961.

Again, copper, magnesium, and exercise work for high blood pressure. Copper is especially good for the heart.

7. Albuterol

Albuterol is an older drug, with commercialization dating back to the 1960s. It was also a breakthrough in treating asthma. Today, doctors use it to treat bronchospasm from a variety of lung problems. Its consistent top ranking is a testament to its effectiveness. Brand names include Accuneb, Proair, Proventil and Ventolin. Total prescriptions: 60,526,457.

Copper is great for the lungs, too.

8. Omeprazole

Omeprazole treats heartburn, GERD (gastroesophageal reflux disease), and stomach ulcers. It was the first member of the PPI (proton pump inhibitor) class to gain FDA approval. Its use has increased since it became available over the counter. This also decreased the out-of-pocket cost for the drug. The brand name is Prilosec. Total prescriptions: 58,364,556.

Copper is great for ulcers and stopping bleeding. It stops bleeding in several ways. Along with Vitamin C, copper builds collagen, which strengthens blood vessels so they do not bleed in the first place. And copper increases red blood cell counts and other clotting factors that help stop bleeding. Finally, it has long been argued that heartburn is from overeating, and from dehydration. Copper helps the body retain salt, which helps the body retain water.

9. Losartan

Losartan is an ARB (angiotensin receptor blocker). Doctors use it to treat high blood pressure and to treat kidney disease in people with diabetes. Losartan broke into the top 50 drugs in 2011 and has been rising ever since. The brand name is Cozaar. Total prescriptions: 50,479,750.

High blood pressure, kidney disease, diabetes. Copper deficiency, all three.

10. Simvastatin

Simvastatin is another member of the statin class. Its usage peaked in 2011 and has been declining since then. In part, this is likely the result of safety warnings from the FDA regarding

maximum dosages and risk of side effects. Still, it remains the second most popular statin after atorvastatin. The brand name is Zocor. Total prescriptions: 48,007,043.

Statins are dangerous. Copper is safe.

Other Top-Selling Prescription Drugs

The remaining 40 top-selling prescription drugs include:

11. Gabapentin (Neurontin). Total prescriptions: 45,586,654 For seizures and nerve pain. Copper! Copper! MSM Sulfur also helps with nerve pain, and pain in general.

12. Hydrocodone/acetaminophen (Lortab, Norco, Vicodin, various others). Total prescriptions: 42,073,176 Opiod for pain, and cough suppressant. Copper! Copper! MSM Sulfur is also great for the nerves and for healing pain.

13. Hydrochlorothiazide (Esidrix, Hydrodiuril, Microzide, Oretic, Zide). Total prescriptions: 40,575,075 A diuretic for blood pressure. Diuretics lower minerals. Copper and Magnesium and Exercise for blood pressure. Greens and green smoothies are natural diuretics.

14. Sertraline (Zoloft). Total prescriptions: 38,383,042 SSRI for depression. Why not just try copper, iodine, magnesium, B vitamins, sunshine, and exercise, and eliminating abusive people from your life?

15. Montelukast (Singulair). Total prescriptions: 35,222,630 For asthma. Side effects: anaphylaxis. Copper is great for the lungs. Copper is also an antihistamine. I think zinc is a stronger antihistamine. If I start sneezing too much, zinc calms it down right away. So copper does not have the side effect of anaphylaxis, it cures that too!

16. Fluticasone (Flonase, Flovent, Cutivate, various others). Total prescriptions: 34,253,764 A glucocorticoid, used for nasal symptoms, containing fluoride. I used to get nasal congestion all the time. However, since I started green smoothies, I do not get nasal congestion. If I do, green smoothies, that I have been neglecting, clear it right up. High copper has also helped keep my nose clear, even without green smoothies! Copper is an anti-inflammatory, detoxer, and boosts hormones naturally, so we don't need to take corticoids.

17. Amoxicillin (Amoxil, Polymox, Trimox, various others). Total prescriptions: 31,371,675 An antibiotic. The three strongest mineral antibiotics are copper, iodine, and colloidal silver. I have a list of about 30 natural antibiotics, from minerals, vitamins, essential oils, and foods. https://revealingfraud.com/2019/08/health/alternatives-to-antibiotics-natural-antibiotics/ Copper might be the strongest mineral antibiotic because copper actually raises white blood cell counts. And colloidal silver and iodine, which are also strong mineral antibiotics, both block copper.

18. Furosemide (Lasix). Total prescriptions: 29,857,945 Furosemide is a loop diuretic medication used to treat fluid build-up due to heart failure, liver scarring, or kidney disease. Copper is helpful for all three. My favorite natural diuretics are leafy green smoothies and MSM sulfur.

19. Pantoprazole (Protonix). Total prescriptions: 28,958,134 -- used for stomach ulcers, due to (GERD). Copper is great for ulcers, as it stops bleeding. Malachite (copper) powder was historically used on leg ulcers.

20. Acetaminophen (Tylenol, various others). Total prescriptions: 27,907,360 Tylenol blocks copper. MSM Sulfur is a great pain reliever. Copper, longer-term, also relieves pain, because copper is such a great healer.

21. Prednisone (Deltasone, various others). Total prescriptions: 27,057,494 a glucocorticoid, to suppress the immune system, and decrease inflammation in conditions such as asthma, COPD, and rheumatologic diseases. Copper is an anti-inflammatory, great for the lungs, great for arthritis. Arthritis is a bigger disease problem than just "copper". I wrote my first book on how I overcame my arthritis; as it is a multi-mineral deficiency disease. Boron is exceptionally great for arthritis, as is Niacin. I got my main healing from arthritis with green smoothies and isometric stretching. But the problem with greens is that they also demineralize, so adding back the minerals greatly improved my overall strength.

22. Escitalopram (Lexapro). Total prescriptions: 25,978,773 A fluoride based antidepressant. Why not just try copper, iodine, magnesium, B vitamins, sunshine, and exercise, and eliminating abusive people from your life?

23. Fluoxetine (Prozac, Rapiflux, Sarafem, Selfemra). Total prescriptions: 25,619,277 A fluoride-based antidepressant. Why not just try copper, iodine, magnesium, B vitamins, sunshine, and exercise, and eliminating abusive people from your life?

24. Dextroamphetamine/amphetamine salts (Adderall). Total prescriptions: 25,331,775 This one contains four salts of amphetamine, a nervous system stimulant. This one screams out "copper"! Copper benefits the nerves! I hate to bog this list down with study quotes, but...

"Pfeiffer and Goldstein ... demonstrated that five milligrams of copper given orally to male volunteers has the same central nervous system stimulative effects as five milligrams of d-amphetamine."

from: http://orthomolecular.org/library/jom/1987/pdf/1987-v02n03-p171.pdf

25. Tramadol (Ultram, various others). Total prescriptions: 24,952,328 opioid based pain killer. Tramadol is also a serotonin–norepinephrine reuptake inhibitor (SNRI). The theory behind "reuptake inhibitors" is that there are then more neurotransmitters in the synapse. This is false reasoning. Why not just take copper, and make more of both serotonin and norepinephrine? Opioids release dopamine. But copper helps make dopamine and more epinephrine. Opioids also dull the brain. Copper boosts the brain. Pain killers do not heal anything. They make pain worse in the long run. Heroin, an illegal street drug, is an opioid.

26. Insulin glargine (Lantus, Toujeo). Total prescriptions: 24,911,721 Copper and iodine for diabetes. Again, half the subjects on the iodine protocol, without copper, completely stopped taking insulin. Imagine taking both copper and iodine! Another mineral good for diabetics is chromium. Why not all three? Plus B vitamins, magnesium, etc.

27. Bupropion (Budeprion, Buproban, Wellbutrin, Zyban, various others). Total prescriptions: 24,488,843 antidepressant. Also: norepinephrine–dopamine reuptake inhibitor. Better to take copper, and simply make more neurotransmitters. See also the chapter on suicide and depression.

28. Ibuprofen (Advil, Motrin, various others). Total prescriptions: 24,453,501 Common painkiller and anti-inflammatory. It blocks copper. MSM Sulfur relieves pain fairly well. So do greens. So does copper. Sulfur, greens, and copper are anti-inflammatories.

29. Rosuvastatin (Crestor). Total prescriptions: 24,138,061 A fluoride-based statin for heart disease. Copper is for heart disease!

30. Pravastatin (Pravachol). Total prescriptions: 24,022,031 A statin for cardiovascular disease. Copper!

31. Trazodone (Desyrel, various others). Total prescriptions: 23,889,624 Antidepressant. Why not just try copper, iodine, magnesium, B vitamins, sunshine, and exercise, and eliminating abusive people from your life?

32. Tamsulosin (Flomax). Total prescriptions: 23,254,004 to help with the passage of kidney stones. Things that move calcium away from soft tissues, and into bones: copper, magnesium, silica, boron, niacin, Vitamin K. And avoiding Vitamin D, which causes calcifications of the soft tissues, such as the kidneys. Calcifying the kidney is the mechanism of action for how Vitamin D works as a rat poison in massive doses. In small doses, it just takes longer. It's funny. The medical establishment slanders Vitamin C for causing kidney stones, based on mere case studies. Bigger studies on Vitamin C refute the concept. Yet they never blame Vitamin D. The medical establishment loves Vitamin D. Vitamin D is the only vitamin recommended for astronauts, to help keep their bones strong. And yet, Vitamin D does not do that. The establishment is losing credibility all the time.

33. Carvedilol (Coreg). Total prescriptions: 22,737,638 high blood pressure and heart failure. Copper, and magnesium!

34. Meloxicam (Mobic). Total prescriptions: 22,610,690 a nonsteroidal anti-inflammatory drug for arthritis. Copper, Boron, Niacin, MSM Sulfur, and my first book, "Beyond the Arthritis Fix".

35. Citalopram (Celexa). Total prescriptions: 22,224,263 fluoride-based SSRI (antidepressant). Why not just try copper, iodine, magnesium, B vitamins, sunshine, and exercise, and eliminating abusive people from your life?

36. Duloxetine (Cymbalta). Total prescriptions: 21,217,653 depression, anxiety, fibromyalgia, and neuropathic pain. Copper, copper, copper, copper. Why not just try iodine, magnesium, B vitamins, sunshine, and exercise, and eliminating abusive people from your life?

37. Alprazolam (Xanax). Total prescriptions: 20,843,479 benzodiazepines for anxiety. Try Niacin and copper. Niacin acts as a benzodiazepine, and lifts mood, reducing anxiety. Copper

boosts niacin's benzo effect. Niacin and Copper always make me feel very very good. I'm a bit skeptical on niacin, but less so, because too much copper can lower niacin, leading to rashes. Zinc and magnesium are also very relaxing minerals. I highly recommend avoiding mixing benzodiazepines and niacin and copper. That would be "doubling up" or even getting a "triple dose".

38. Potassium (K-Dur, Klor-Con, Klotrix, Micro-K, Slow-K, various others). Total prescriptions: 20,414,037 A great nonprescription source of potassium is Nu-Salt, a salt substitute, sold by the salt and spices in grocery stores or any large online retailer. Copper is not an effective substitute for potassium. They are both minerals; different minerals.

39. Clopidogrel (Plavix). Total prescriptions: 20,016,095 Heart disease and stroke. Copper and Copper. Copper and Vitamin C and silica boost collagen and connective tissues and strengthen blood vessels and heart tissues.

40. Aspirin (various). Total prescriptions: 19,750,180 Blocks copper, said to be good for circulation. What is good for circulation? Copper! In the first chapter of the book, I had over 10 reasons why copper is good for circulation.

41. Ranitidine (Zantac). Total prescriptions: 18,739,686 decreasing acid for stomach problems. Stomach acid is nearly never the problem. The problem is lack of it or dehydration. We also need a strong stomach lining. Copper helps. Copper fixes stomach problems. Also, zinc and B vitamins and salt are needed to make hydrochloric acid, which is essential for digestion. Copper, helping the body retain a bit of salt, helps prevent dehydration. Just don't overeat, and take magnesium so the flap at the top of the stomach works.

42. Atenolol (Tenormin). Total prescriptions: 18,644,884 Atenolol, however, does not seem to improve mortality in those with high blood pressure. Right. Copper, Magnesium, and Exercise for blood pressure.

43. Cyclobenzaprine (Flexeril). Total prescriptions: 18,041,836 for muscle spasms. Magnesium, potassium, and copper. Copper helps the nerves, and magnesium and potassium help the muscles relax. Muscle spams are also due to dehydration. Copper and the other electrolytes magnesium and potassium and salt also help prevent dehydration.

44. Glipizide (Glucotrol). Total prescriptions: 17,549,602 for diabetes. (Copper, iodine and chromium)! Also, fasting, going without food for a day or two. And exercise naturally lowers blood sugar.

45. Methylphenidate (Concerta, Metadate, Ritalin, various others). Total prescriptions: 17,467,265 works by blocking dopamine and norepinephrine reuptake by neurons. Just make more with copper. Blocking a basic body process (reuptake inhibition) seems to me to be an effect of poisoning, which, naturally, would shut down body processes.

46. Azithromycin (Zithromax). Total prescriptions: 17,102,628 antibiotic. Copper, iodine, colloidal silver, etc.

47. Clonazepam (Klonopin). Total prescriptions: 17,064,643 "Clonazepam binds to GABAA receptors"

Copper Block of Extrasynaptic GABAA Receptors

https://www.jneurosci.org/content/33/33/13431

48. Oxycodone (Oxaydo, Oxycontin, Roxicodone, various others). Total prescriptions: 16,967,479 opioid for pain. Again, copper, MSM sulfur, greens. Pain is a symptom of damaged tissue or damaged nerves. The solution is to heal tissues and nerves. Pain killers do not heal anything. They always make pain worse over time by increasing toxins, and preventing people from thinking well. Opioids release dopamine, but do not help make it. Copper helps the body make dopamine from amino acids, from protein.

49. Allopurinol (Aloprim, Lopurin, Zyloprim). Total prescriptions: 16,374,431 Decreases uric acid, for gout. Copper and iodine for gout. Copper lowers uric acid.

50. Venlafaxine (Effexor, Effexor XR). Total prescriptions: 16,121,149 serotonin-norepinephrine reuptake inhibitor. Nope. Make more with copper.

It appears to me that copper is a part of the solution for 49 out of the top 50 drugs prescribed in America. Except for potassium. Which is not a drug, and you can buy it as "Nu-Salt".

I have to admit that I find this shocking. 49/50 is 98%. I had no idea when I set out to write this book that copper was that important. If I had to guess before I wrote this book, I was thinking that copper might help out maybe 30-50% of the symptoms that the popular drugs are used for. As I was writing this book, I began to think maybe copper could work for about 60-80% of what common drugs are prescribed for. I did not set out to claim that copper is a "cure-all", but rather, that copper is overlooked and neglected and important.

This is not an exaggeration. This is not a drill. This is a wake-up call. This is an emergency.

I believe future generations will describe this era as "the dark age". The information is out there. It is just not appreciated, nor properly compiled, nor put into widespread practice.

This book is the kind of large compilation on copper's effects that I could not find, so I created it.

I believe the fact that most drugs are being prescribed for symptoms of copper deficiency goes to show that copper deficiency is a big problem in America, and far more common than anyone seems to realize, including myself.

Another consideration is that there are something like 20,000 drugs out there. And there is no possible way that their interactions have all been studied. They have not.

With 20,000 drugs, and looking at only 20 potential subsets at the permutation and combination calculator reveals:

https://www.calculator.net/permutation-and-combination-calculator.html

42,692,162,840,632,250,336,609,090,838,534,316,908,385,402,998,227,673,769,146,392,749,00 combinations.

There are not that many atoms in the solar system!

Drug combinations, limited to 20 out of 20,000 = 4 x 10 to the 68th power.

Atoms in the Sun = 1 x 10 to the 57th power.

So there are 10 billion more drug combinations than there are atoms in the sun.

People who take drugs, assuming their doctor knows what they are doing, are assuming their doctor has God-like knowledge of the potential dangers of what combinations of poisons can do. And math is lost on these people anyway.

On the other hand, there are only about 15 key vitamins and minerals. Those have far fewer possible interaction effects, and most of the time, there is a positive synergy between vitamins and minerals.

What is really astonishing is that people will avoid vitamins and minerals because of possible interaction effects, many of which have already been studied, but think nothing of taking 5 to 8 prescription medicines at once, when the vast majority of their interaction effects have never been studied.

Medicines are, by legal definition, dangerous, otherwise, they would not be available by prescription only. Even over-the-counter pain killers that are available without prescriptions kill people each year.

Meanwhile, copper supplements kill nobody, but they always claim that copper is dangerous. Upon what basis? We already refuted the Government's bogus tolerable upper limit. We will examine their claims that copper is dangerous very carefully and very closely in chapters 66-85 on copper toxicity.

CHAPTER 62: 325+ DRUGS THAT CONTAIN FLUORIDE

325+ drugs that contain Fluoride

https://truthaboutfluoride.com/drugs-that-contain-fluoride/

As I was building my list of things that block copper, I was dreading the task of having to build a list of drugs that contain fluoride, since fluoride blocks copper. I was planning on listing only the popular drugs that contain fluoride. Thankfully, I found that somebody else beat me to it, with a much larger list.

A quick and easy way to tell if the drug you are curious about contains fluoride is to look it up at Wikipedia. Then look at the picture of the molecule of the drug on the upper right side of the page. Look for an F atom, usually yellow, indicated by the F. If it has an "F" that means it contains fluoride.

CHAPTER 63: TESTS ARE ACCURATE, BUT GIVE USELESS FEEDBACK

There are only a few copper tests available. The most reliable is the blood test for copper, (serum test) and the ceruloplasmin level test.

While the tests may accurately measure copper in your blood, they cannot determine if you are copper deficient, for a few reasons.

1. If the "average" person is copper deficient, which we now know, then they are comparing test results against averages. If you test above deficient it does not mean you are high, it means you are slightly above deficient, which is likely still deficient.

2. Copper tends to go where the body needs it. Copper is an anti-inflammatory, yet copper blood levels rise with inflammation. Copper blood levels double, and go up 100% during pregnancy. This is not in order to transfer "toxic copper" to the baby, because copper is not toxic. Babies typically have 5 times higher body copper levels than adults.

3. Copper in the blood tends to rise with a wide variety of conditions. This is not "causality", it is "association" or "correlation". Correlation is not causation. They never give people copper, and then see diseases being created, it's all just associations based on blood tests.

4. However, if your blood copper levels are low, it could indicate that you are very deficient in copper. By definition, copper blood tests only show how much copper is in your blood. They cannot show how much copper, or how little copper, is elsewhere, such as in the bone marrow, muscles, or liver. Biopsies are expensive and risky.

5. Copper enzyme tests are also of little use. You can have similar levels of copper enzymes whether deficient or sufficient in copper, but the enzymes are far less active when in a state of copper deficiency. Tests cannot tell you if your enzymes are inactive. Besides, "copper sufficiency" has never been defined or studied.

6. Since so many other things can negatively affect your copper metabolism, there are literally so many other things to potentially test for to really determine things, and those other things similarly have trouble with being accurately tested.

7. Why spend hundreds or thousands of dollars on tests to determine if you need to take 2 cents worth of copper a month, when you could just test by taking copper, and see if you feel better?

8. Testing for copper makes the false presumption that a little bit more copper is toxic, and it's not. See chapters 66 to 85.

9. It is far safer, cheaper, faster, and more reliable (in other words, you won't be confused or misled by "testing high" or "testing average") if you just ask yourself the following question: "Do I eat several pounds of liver each week?" If the answer is no, then you are likely copper deficient, like nearly everyone else.

10. It is also far better to simply ask yourself, "How many copper deficiency symptoms do I have from the first chapter of the book?" If you have over 5 symptoms, you are likely copper deficient.

11. What is a sufficient and optimal level of copper? Modern science has not yet come close to even begin trying to answer that question.

CHAPTER 64: SHOULD YOU CONSULT AN IGNORANT AND UNINTELLIGENT DOCTOR?

A common theme I get when I share scientific studies about copper online is that people retort, "I'll consult my doctor" or that "You should consult your doctor before supplementing". Why? Nobody consults a doctor before every meal. Nobody consults a doctor before drinking a glass of water. Nobody consults a doctor before taking Vitamin C. Nobody consults a doctor about virtually any other supplement.

Nobody says to ask a doctor before you decide to take a breath. It's absurd. And why? Because without breathing, you know you will die.

Without copper, you die.

Copper is not a prescription medicine, and anyone can buy it over the counter at health food stores and drug stores, or online. If you can even find it because it's a rather unpopular supplement.

And doctors do not automatically learn of the nearly 6000 articles on copper that are published each year. There is no way they can keep up, even if they were superhuman. And they have no financial incentive to tell us all how to be healthy for free. Not even dumb doctors will put themselves out of business. But it turns out...

It turns out that doctors are not smart. This was unexpected. According to the study, nobody had done an IQ test of doctors before 2011.

Orthopaedic surgeons: as strong as an ox and almost twice as clever? Multicentre prospective comparative study

https://www.bmj.com/content/343/bmj.d7506

36 orthopaedic surgeons averaged 105 IQ.

40 anaesthetists averaged 98 IQ

100 IQ is said to be "average".

So those administering the drugs were slightly below average IQ.

"The intelligence scores were lower than anticipated for IQ in the medical profession."

The authors tried to explain this oddity by saying maybe the doctors were not that committed to the short IQ test of 20 questions that they took on their cell phones.

I have my own alternative explanations. Maybe the medical profession itself makes people dumber than they otherwise would be. Life choices have consequences.

Is it smart to try to heal people by using a system of poisons, such as prescriptions?

Is it smart to enter a “health” profession while undergoing sleep deprivation?

Is a health profession that demands sleep deprivation actually healthy?

Why are there no regulations for hospital food, while prison food must contain required minimum RDA’s for vitamins and minerals?

Why is the medical profession consistently wrong, or at least, consistently changing their views on what is healthy over the past 30–40 years?

Despite all the evidence as to the effectiveness and safety of vitamins and minerals, why does the medical profession continue to both ignore them, and slander them?

Why are nearly 100,000 or more people in the USA killed by pharmaceuticals each year, taken as directed, and as accurately prescribed?

How intelligent are people who commit medical errors that are responsible for between 400,000 to nearly a million deaths each year?

Given the above, what does it say about the character and intelligence and morality of people who are attracted to the poisoning profession that knows next to nothing about health?

Intelligence tests are designed to be a test of a person’s ability to learn. The point is to determine if people are capable of learning what is required in higher education. In my opinion and experience, doctors in the medical profession are among the least capable of learning anything. This is likely due to their combination of sleep deprivation, leading them to become brainwashed into thinking that they have a Godlike knowledge about everything in health when in reality, they usually know nothing. Furthermore, they have a conflict of interest if learning how to heal people with nearly free vitamins and minerals that could put them out of business. More evidence of their foolishness lies in the fact that nearly every disease today is said by their profession to be "incurable," despite the volumes of evidence of the cures from copper alone, in their own scientific journals. In fact, their entire way of living depends on deceiving us into becoming unhealthy.

An "average" IQ doctor, who knows less than nothing about copper, believes a host of lies about copper, and can't cure anything, and has monetary conflicts of interest, and an average intelligence, is the last person I would consult about copper.

If you want to learn if the government is wrong about something, why would you consult so-called experts who got their knowledge in schools whose curriculum was accredited and approved by the government?

Not all doctors are bad. Most are bad.

Of course, I am examining the opinions of doctors about copper by examining their articles on the subject. But I don't just take their opinions at face value. I examine the evidence they have presented. I ask myself if there are other possible conclusions. I try to see what they might have not seen or looked at. I read between the lines. I use critical thinking. I ask questions.

If you insist on asking your doctor about copper, then you should ask him hard questions, based on facts you have learned from this book. I'm sure he won't be familiar with any of the real information about copper. He will likely have faint knowledge about the common misunderstandings of copper, and think of those misunderstandings as reliable facts.

You will likely hear your doctor say "copper is toxic" if you get too much. Simply ask him for evidence of that. He likely won't be able to provide any evidence of a kind that has not already been refuted in the next chapters on copper toxicity. If he shows you anything, check to see if it is an intervention study or association study. It will likely be associational study and use the words "linked". If it's an intervention study, where they actually gave people copper, they likely gave less than 2 mg, which is too little copper, not enough to even cure a deficiency, and then blame copper as toxic.

CHAPTER 65: INTENTIONAL LIES, OR IGNORANCE?

I find it easy to get carried away, and start falsely accusing doctors, the elite of society, the moneylenders, the multi-billionaires, of purposefully plotting to cause copper deficiency worldwide. Other writers have stated as much. I apologize if I have done so. Why?

Because this kind of emotional outburst is a result of my frustrations when I discover mistakes made by others. When I see finally see it, I end up thinking, "Nobody could be that ignorant, it must be intentional!" Even though I may have bought into that exact argument for years, without thinking much about it. And so, the reality is that yes, most of us are that stupid, including myself!

Intent is a very difficult thing to prove, and usually, people in the past had to come to conclusions without the benefit of access to the internet. I should be more forgiving of them.

While there may be plots to purposefully poison all of us, and while it may well be that many of the poisoning efforts contribute to copper deficiency as a result, I do not think there is one entity, nor a group of people who purposefully set out to cause copper deficiency in America. That assumes far too much.

I have said before: "Never attribute to your enemy evil genius, when simple ignorance would also suffice."

As Jesus put it, "They are the blind leading the blind." And Jesus also said, "Forgive them, for they know not what they do." On the other hand, Jesus did list many specific sins of his enemies in Matthew 23, which is such an epic expose and condemnation, I think most people could not imagine Jesus ever doing anything like that.

I realize now that there is no evidence of a secret cabal who take copper supplements themselves while attempting to cause copper deficiency for the rest of us. After all, there are none who have left the top elite groups who then go around saying we all need to take copper like the elites do in secret.

I'm fairly certain that nobody has put together the many big lists as I have in this book, of what copper does, of the signs and symptoms of copper deficiency, and of the lists of things that can cause copper deficiency. Everyone else's lists are far shorter. Therefore, while the knowledge in this book is all in the public domain, nobody has quite synthesized it all as I have, and there are no books advocating high copper as I do in this book.

So, in essence, the knowledge in this book, as a whole, did not even exist until I put it all together.

The best evidence that they are trying to hide copper and iodine from us lies in the similarity of their false claims. However, there can be another explanation rather than evil intent. They have many other inherent biases.

They are biased in favor of making money from drugs.

They view all drugs as potentially toxic at standard doses, and thus, they may naturally assume the same with vitamins and minerals.

And they have an entirely different worldview. They view man as a machine. They view diseases as the body overreacting. They view poisons as methods of suppressing symptoms. They view poisons as their only tool kit, besides cutting. They view correlation as causation while proclaiming their withcraft/pharmakia poisons as "science-based" medicine, which it is not. They correlate germs with disease.

They view low doses of copper as necessary, and slightly elevated copper in blood or tissues as evidence of toxicity rather than as the body's natural attempt to use copper to heal. They think coper has to have a narrow range of intake because they view high copper in the serum as a cause of a disease, rather than the body using copper to cure disease. They have explained away how copper could cure anything, because "copper is dangerous", using circular reasoning.

They couldn't possibly view their entire profession as a scam. They couldn't possibly view their high salaries as totally unjustified in comparison to the power of a 2.4 cent 2 oz. bottle of copper at 1 mg per drop. You can see the bias against copper is inherent in their studies. They love to study the sick. They nearly never attempt to give 10, 20, 30, 40, 50, 60, 70 milligrams of copper to sick people, or "copper-deficient" people to see if they get well.

They make so many sweeping pronouncements that are utterly impossible to make, that prove their own ignorance, like "there is no known cure", as if their one profession, from which they may well have graduated from 30 years ago, knows everything there is to know, despite the fact that 500 new articles on copper are being published at PubMed monthly now.

Even if there was an evil subversive intent to cause us all to be copper deficient, what would that change? Nothing. Therefore, the question does not matter, nor does the answer. Besides, why spin out needlessly over what other people do or neglect to do? What others do is on them.

The solution remains the same. We have to take responsibility for our own health, and take copper ourselves.

Another important lesson is that people do not just grab on to truth when it is presented. Very strong biases exist. How do we deal with other people who refuse evidence or knowledge? I have simply learned to not deal with them at all.

In fact, I bristle very strongly when people make false accusations about me. Therefore, to be consistent, making assumptions about another person's intent is nearly impossible to know.

Jesus said, if people will not listen to our words, to move on. And if they persecute us, to flee. Hard lessons I have learned in life as well.

It is said that truth goes through three stages. First, it's violently opposed. Second, ridiculed. Third, accepted as self-evident. Thanks to the internet, I can source that quote to Arthur Schopenhauer. This is the beauty of the age of information. Anything and everything that is written in this book can be quickly and easily confirmed, especially in the ebook, where you can click on links, or search up any topic in seconds.

In the age of information, ignorance is a choice. Then again, doctors are also simply very busy.

CHAPTER 66: COPPER TOXICITY LIES

You know you have been lied to about copper toxicity because you cannot remember or say the precise level of copper supplementation, how many milligrams, over what time, that becomes toxic. This is not a result of your memory, which is good. It's because the promoters of this faulty idea of copper toxicity are lying by omission, and you know it.

Now say the following 4 words with that deeply resonating movie voice-over: "Remember who you are!"

You are a judge of truth. You are a potential juror. You know how to detect the difference between truth and lies. Especially when I can help you along.

There has never been a study where they gave people copper supplements and then demonstrated any toxicity. Never. Not one. This is why you don't know the answer to my question above, because there isn't one.

People are scared of copper. They are afraid to take it. How can I really refute this myth? I have already refuted many of the supposed dangers of copper. Copper does not cause cancer. Copper tends to cure cancer. Copper does not cause liver disease, it tends to cure it. Copper does not cause Alzheimer's, it more likely cures it.

One of the best refutations is to simply retort, "Prove it." The burden of proof is on the one making the claims. Prove that copper is dangerous. Please say at what levels copper is dangerous, and what exactly happens.

The other refutation is to quote the studies showing that at 10-20 mg of copper supplementation daily, nobody has any problems, no liver problems, nothing.

I can also say at what levels copper is dangerous because I have done the research. Copper is dangerous at 20,000 mg. Therefore, there is no risk at 20 mg. 20,000 mg has no applicability to 20 mg. It is 1000 times more. Amounts matter!

Taking 1000 times more of just about anything will kill you, except iodine. We have actually taken 2000 mg of iodine, well over the 0.15 mg RDA for iodine, and we are just fine. I've said it earlier, to get 20,000 mg of copper from a typical 2 mg copper pill bottle containing 90 pills, you would have to consume 111 bottles of a copper supplement, in one day! Nobody in the history of the world has ever done this. To consume 20,000 mg of copper, you have to take about 8-9 teaspoons of copper sulfate. The only people who do this live in India, and they are attempting to commit suicide, and they usually fail.

CHAPTER 67: COPPER IS TOXIC FROM 10,000 TO 20,000 MG

Acute ingestion of copper sulphate: A review on its

clinical manifestations and management

https://www.ijccm.org/doi/IJCCM/pdf/10.4103/0972-5229.33389

When "consumed mainly with suicidal intentions", [in India] the mortality rates vary from 14-18.8%" Lethal intended dose is 10-20 g, or 10,000 mg to 20,000 mg.

Symptoms leading to death include rapid breathing due to alterations of the blood, jaundice of the liver, and kidney failure, usually within about 10 hours to 3 days.

"The average half-life of copper in a healthy individual is estimated to be 26 days."

https://inchem.org/documents/ukpids/ukpids/ukpid56.htm#:~:text=Copper%20sulphate%20is%2(

"fatal copper sulphate ingestion. In a review of 123 cases Ahasan et al (1994) observed an "unpredictable" outcome in those consuming less than 50 g while 100 g was "invariably fatal". By contrast Akintonwa et al (1989) claimed 10-20 g copper sulphate to be a "definitely fatal" dose..."

https://www.consultant360.com/articles/acute-copper-sulfate-poisoning

Minimum toxic levels of copper sulfate ingestion have been estimated at 1 g, whereas amounts of more than 10 to 20 g have been linked to lethality, predominantly from these hepatic and renal [liver and kidney] effects.6,7

CHAPTER 68: IT'S THE FLUORIDE

But Copper in tap water is dangerous so says the EPA! Yes, and as we have already gone over, tap water contains fluoride, which strips the copper from the pipes. Prove it's the copper causing problems, and not the fluoride! Clean water does not strip copper from pipes. You need an acid like fluoride. Copper in tap water is, therefore, a marker for high fluoride. That's why copper in drinking water is dangerous. It's not the copper. It's the fluoride.

This could also explain why "correlation" studies are bogus when they measure copper, or "high copper" in diseased tissues. Almost nobody in America is taking copper supplements, and those who do, barely get 2 mg. So tap water could be the other source of high copper among the population, about half the population. So measuring high copper could simply be a biomarker of people who are also high in fluoride.

The second explanation for high copper in diseased tissues is... "high compared to what"? Clearly, they are comparing to the average population. But what if the average population is woefully copper deficient. As we saw, most people, 81% get less than the minuscule fraudulently low RDA of copper of 0.9 mg, only getting 0.6 mg.

The third explanation for high copper in diseased tissue is... "correlation is not causation".

The fourth explanation for high copper in diseased tissues is that copper could be there because the body is attempting to transport copper there to heal it.

Nobody ever gives people copper, who then end up getting diseases. It does not happen. So copper is not toxic.

CHAPTER 69: IS 188 MG COPPER TOXIC?

When I first began researching the safety and toxicity of copper sulfate, this number jumped out at me. The minimum level of reported copper toxicity from copper sulfate was 750 mg, which is 25% copper, which is 188 mg of copper.

Sources: https://en.wikipedia.org/wiki/Copper(II)_sulfate#Toxicological_effects

“According to studies, the lowest dose of copper sulfate that had a toxic effect on humans is 11 mg/kg.[45]”

My note: 150 lb man / 2.2 pounds/kilo = 68.1818 kilos x 11 mg = 750 mg, as reported above.

http://extoxnet.orst.edu/pips/coppersu.htm --note, they have been changing this link. To re-discover the article, try searching for the quote below:

The Extoxnet article says “The lowest dose of copper sulfate that has been toxic when ingested by humans is 11 mg/kg (8).”

This was not a lethal level, and I don't know what the symptoms were from this "reported poisoning". Given that doctors have given up to 500 mg of copper sulfate to sick people to induce vomiting, and/or up to 2.5 grams, or 2500 mg, I do not think this level is a realistic toxicity level. It could be just another "tummy ache" level.

So, initially, for perhaps a year, I viewed 188 mg as a better indicator of a "tolerable upper human limit". But upon further reflection, while writing this book, we really do not know much from one reported "poisoning" that could just be an upset stomach, more, or less.

People also report tummy upset over 3-4 mg of copper. But given the high levels of copper that people can really tolerate, I think the 4 mg is temporary, and only from fluoride detox, because when people get used to taking copper over time, that fades. Copper used to affect me that way, too. 3 mg to 6 mg would upset my stomach. It no longer bothers me.

CHAPTER 70: UNREALISTIC COPPER TOXICITY LEVELS: 1-2 MG/DAY (DR. WILSON)

There are people who think the typical copper supplement of 2 mg is dangerous. No. This idea is dangerous. It keeps people away from attempting to cure themselves of extremely common copper deficiency, and its many manifestations plaguing us all. Here is the truth:

COPPER DEFICIENCY IS DANGEROUS.

COPPER DEFICIENCY APPEARS TO LEAD TO EARLY DEATH FOR MILLIONS OF PEOPLE EACH YEAR.

COPPER TOXICITY FROM SUICIDE ATTEMPTS AFFLICTS ABOUT 1-3 PEOPLE EACH YEAR.

DEATHS FROM REGULAR COPPER SUPPLEMENTS ARE ALWAYS ZERO, ZEEEE-ROOOW!

Let me postulate an axiom.

"IF YOU ARE SUFFERING FROM COPPER DEFICIENCY SYMPTOMS THEN THOSE SYMPTOMS ARE MILLIONS OF TIMES MORE DEADLY THAN TOO MUCH COPPER!"

"FIX YOUR COPPER DEFICIENCY SYMPTOMS WITH ENOUGH COPPER FIRST, AND THEN, AFTER YOU ARE HEALTHY, THEN WORRY ABOUT TOO MUCH COPPER!"

Even my wife, who reads on health continually, before she met me, she bought a 2 mg copper supplement, and cut them in half down to 1 mg, on the thought and precaution that too much is dangerous. She laughs at that now.

Another example would be doctors refusing to give any more than 0.5 mg of copper by intravenous injection, in the thought that more would be toxic.

Another example is the page from Dr. Wilson on "copper toxicity". He quotes a woman who was taking prenatal vitamins that contained 2 mg of copper as being the cause of her hair loss.

But copper prevents hair loss, as we have seen. Copper is needed to make keratin, the main ingredient in hair and nails. Here is more proof:

https://pleijsalon.com/how-copper-peptides-boost-hair-growth-and-stop-hair-loss/

A more realistic mechanism of action on why prenatal vitamins would cause hair loss is as

follows. First, prenatal vitamins are among the worst quality and most out-of-balance vitamin formulas on the market. They do not even contain enough B vitamins or magnesium within them to help deal with the sugar in the chews that they contain! And they are loaded with folic acid.

Folic acid can lower vitamin B12, and induce or mask a B12 deficiency. B12 is rather expensive, and not even a high-quality B complex vitamin has enough. So we also supplement with b12 on occasion.

B12 deficiency leads to anemia.

The prenatal vitamins are also loaded with iron, which blocks copper, which can lead to copper deficiency anemia. So prenatal vitamins can cause anemia in two different ways, excess iron leading to low copper, and lack of B12!

Anemia leads to hair loss.

https://www.medicalnewstoday.com/articles/321668

"While severe iron deficiency anemia can cause symptoms such as shortness of breath, fatigue, and chest pain, some people also experience hair loss."

In other words, it was the folic acid, and iron that blocks copper, not the copper, likely causing the hair loss. There could be many other causes, as well, but it's not the copper.

I previously wrote on refuting Dr. Wilson. Here, from my notes:

Dr. Wilson's article:
https://www.drlwilson.com/Articles/COPPER_TOXICITY_SYNDROME.htm

Dr. Wilson claims he was high copper, but he admits his test came back Normal. That is a red flag because he has no evidence of his claim. It could be that he is confused.

Dr. Wilson: "I was full of copper 35 years ago. I was depressed, my thoughts raced day and night, and I was achy, spacy, and foggy. I went to at least a dozen doctors. No one figured it out until someone did a hair analysis. Even then, the copper level was normal."

Actually, depression and brain fog are from copper deficiency.

Second, in his article, he sounds confused, or he is creating intentional confusion by the words "copper imbalance". Neither his readers or him, has any idea if he is talking about high copper or low copper, and maybe he wants it this way on purpose, so you are unconsciously led to try his "copper balancing" program.

Third, from my opinion, he sounds copper-deficient to me. He has a few other symptoms, but I will not elaborate.

Fourth, he makes contradictory statements. He says high copper causes both no sex drive and high sex drive in women. That's not how it works.

Fifth, he is not "all wrong". That's now how it works. He has many great insights, and I re-read his article from time to time. I agree that high copper lowers Vitamin C and Zinc. And conversely, high Vitamin C and Zinc can lower copper, and that the body needs all of these in balance. I also like his "high oxidizers" need more copper idea. Yes, intense exercise and even too much sweating can deplete copper, as copper comes out in the sweat.

Since I wrote the article refuting Dr. Wilson on copper, one of Dr. Wilson's students said they disagreed with my entire article refuting copper toxicity. But he refused to address any of my arguments. This is very typical of those who are wrong. He said literally nothing except that he disagreed. Well, of course, that's normal for people to react that way. Why would they admit they were trained incorrectly. People rarely do.

CHAPTER 71: NOBODY EVER DIES FROM COPPER SUPPLEMENTS

As Andrew Saul likes to point out, there are never any deaths from vitamins or minerals.

"The most recent (2014) information collected by the U.S. National Poison Data System, and published in the journal Clinical Toxicology (1), shows no deaths whatsoever from dietary supplements across the board."

No deaths from supplements, minerals, amino acids, and herbs

https://www.kingswaycompounding.com.au/no-deaths-from-supplements-minerals-amino-acids-herbs/

CHAPTER 72: A HIT PIECE ON COPPER

If you type in at google: "is copper toxic", the following excerpt comes up:

"Too much copper can be fatal. You could get severe toxicity from ingesting large amounts of copper salts through your skin. Copper can work its way through your internal organs and build up in your brain, liver, and lungs. People who have copper toxicity can become very unwell. May 3, 2021"

It links to: https://www.webmd.com/diet/what-to-know-copper-toxicity#1

There is no source material for that quote. It appears to be purely fabricated.

The article contradicts itself. First, it's good for the skin. But don't apply it to your skin. Huh?

"Copper is used in many different ways throughout your body. It improves your skin, nails, and hair." Right. Keratin.

"You could get severe toxicity from ingesting large amounts of copper salts through your skin."

The article never provides any references for their statements. They do provide references, but nothing is directly referenced or quoted, nor do they cite page numbers, nor provide links. I have provided links to their sources listed.

SOURCES:

MERCK MANUAL: “Copper Toxicity.”
https://www.merckmanuals.com/professional/nutritional-disorders/mineral-deficiency-and-toxicity/copper-toxicity

National Institutes of Health: “Copper.”
https://ods.od.nih.gov/factsheets/Copper-HealthProfessional/

National Research Council: “Copper in Drinking Water.”
https://www.nap.edu/catalog/9782/copper-in-drinking-water --$38 ebook.

OSU.EDU: “Copper toxicity.”
https://u.osu.edu/medina.166/metal-blog-entry-copper-toxicity/

Research Journal of Recent Sciences: “Copper Toxicity: A Comprehensive Study.”
http://www.isca.in/rjrs/archive/v2/iISC-2012/12.ISCA-ISC-2012-4CS-93.php

UNIVERSITY OF ROCHESTER MEDICAL CENTER: “Total Copper (Blood).”

https://www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=167&contentid=total_copper_blood

For further vagueness, the article does not provide any information on how much copper is too much. Literally zero. Not 3 mg, not 1000 mg, nothing. There is a principle in law. It goes like this: "contract is void for vagueness".

https://www.law.cornell.edu/wex/vagueness_doctrine

Furthermore, the government, the CDC, in their 300+ page document titled, "Toxicological profile for copper" at this link:

https://www.atsdr.cdc.gov/ToxProfiles/tp132.pdf

on page 85 in the total document, also page 64 on the page numbers internally, it says the following:

"3.2.3.1 Death

No studies were located regarding death in humans and animals following dermal exposure to copper. "

Dermal is skin. And what did the article just say again, the very first words at google?

"Too much copper can be fatal. You could get severe toxicity from ingesting large amounts of copper salts through your skin."

Now, note the wiggle and weasel words: "can be" "could get". There is no evidence for their main claims. None.

Therefore, the article appears to be a "hit piece" on copper, to falsely warn people specifically about both the type of copper I use, copper sulfate, and both of the methods I use to take it, both orally and topically.

They never mention the level of copper that is toxic, never mention how the RDA's were established, and never mention the UL nor how they were established. Typical.

CHAPTER 73: I WENT LOOKING FOR ANSWERS

I found an online website talking about copper toxicity that had a real time chat box: "May I answer any of your questions"

Jason Hommel

At what level of copper does it become toxic? How many milligrams, over what time, and what study says that?

RE: Your article: "... copper overload ...: ""

Hello! This is Dr Dave. How may I assist? Please note, information discussed here is not secure.

Jason Hommel

It's ok if you don't know. After three years of researching, I still don't know. I don't think anyone knows. Because there are no studies were they gave people copper, and then bad things happened to their health.

David

For additional details you may want to visit website of William Walsh PhD.

Jason Hommel

Thank you.

I'm writing a book on copper. I'm refuting the idea of copper toxicity.

I have been taking 30 mg to 70 mg of copper for three years now.

I've never been or felt healthier.

David

You clearly haven't managed any patients with copper overload.

Jason Hommel

I won't be mentioning your article.

You are right. I am not a doctor, and I don't see patients.

He ended the chat.

I completely showed him up in seconds. He had no answer.

Next, I followed his lead.

CHAPTER 74: WALSH INSTITUTE ON EXCESS COPPER

https://www.walshinstitute.org/will-new-brain-biochemistry-findings-clear-the-murky-waters-of-depression.html

"High copper depression is marked by extreme levels of copper in the blood and brain, causing a dopamine deficiency and norepinephrine overload. Increased copper retention is necessary to rapidly produce capillaries and blood vessels for the growing fetus, and some mothers are unable to eliminate the excess copper. Walsh suspects that postpartum depression is usually caused by copper overload. Seventeen percent of the depression patients in the study fit this category. Most reported little effect from taking SSRIs, but gained relief from embarking on nutrient therapy to normalize levels of copper."

I note there are zero links to any scientific articles. No evidence backing up any of this. The real findings, as I have shown, are the opposite in many ways. Copper helps the body make dopamine, not lower it. It is not "increased copper retention" in mothers. Pregnant mothers have a 100% increase of copper in the blood, for the baby, regardless of copper intake. This copper in the blood can come out of body tissues. And this indicates that the baby needs copper, and the baby is depleting the mother of copper. Babies are born with copper levels five times higher per kilo of body weight than adults. So the baby did get the copper from the mother, there is no other source. Mother is likely depleted of copper after birth, not ending up with any excess that can't be excreted. Babies also take iodine from mothers. Both copper and iodine thus become deficient after pregnancy, not in excess, because the nutrients went to the baby. Nutrient therapies to lower copper usually include zinc and Vitamin C. Both are good nutrients, but lowering copper when it is low is not the answer.

Finally, copper does not cause depression. Copper cures depression. It increases 4 neurotransmitters, etc.!

And still, it's the same thing. No indication that anyone took a certain amount of copper and had problems. Just an idea that pregnant mothers accidentally absorb too much copper, and another idea that they end up high copper after birth. And they have an overreliance on blood testing for copper and have a bias.

They claim high copper in the brain, but I seriously doubt the Walsh Institute is doing brain biopsies. A brain biopsy would be the only way to determine copper in the brain. It is extremely risky. "Possible risks of a biopsy include bleeding, brain swelling, seizures, stroke, infection, blood clots, and reactions to anesthesia." See: https://mayfieldclinic.com/pe-brainbiopsy.htm

ABOUT WALSH RESEARCH INSTITUTE: (from their homepage)

The Walsh Research Institute is a 501(c)(3) public charity. Our mission is to bring the benefits of advanced biochemical therapy to millions of persons challenged by ADHD, schizophrenia, bipolar disorder, anxiety, clinical depression, behavior disorders, autism, and neurodegenerative disorders.

They are trying to help with neurodegenerative disorders, but are pushing the concept of copper toxicity? They know less than nothing, the blind leading the blind. Copper heals the nerves.

CHAPTER 75: ORTHOMOLECULAR OPINION ON COPPER TOXICITY

Excess Copper as a Factor in Human Diseases

Carl C. Pfeiffer, Ph.D., M.D.1 and Richard Mailloux, B.S.1

http://orthomolecular.org/library/jom/1987/pdf/1987-v02n03-p171.pdf

Presumably, this is a paper from 1987, the days before the internet. There is bias all over this paper. The author blames most copper toxicity in the general population on copper mining, which is preposterous. He likely got that from the government's toxicological report that says something similar. Interestingly, he mentions Klevay's work, (who wrote excellent scientific papers on copper deficiency causing heart disease) but dismisses it as "of limited importance", by assuming copper deficiency is rare. This is circular reasoning. Heart disease is not rare, as it is the leading cause of death.

He then states that copper deficiency is rarely diagnosed, but copper excess is common in patients. Yes, but what is the bias of the people making those determinations? If doctors believe copper deficiency is rare, then they will rarely diagnose it. If they believe copper excess is common, likewise. Hence, bias.

I am not disputing their findings. I'm disputing their meaning, given the larger context.

What is high? The only way to claim what is high is to compare to average. But if the average is deficient, then they have simply found a level that is "above deficient" which may also be deficient!

Furthermore, correlation is not causation. Yes, copper rises in the blood when it's time to heal or create. Pregnant mothers have 100% more copper in the blood. Copper is the healing mechanism, not a toxic agent. Their bias, and lack of familiarity with what copper does, is what determines which way they interpret correlational data.

Let's examine "copper in the blood" for a second:

"The normal range for total copper in the blood is 85 to 180 micrograms per deciliter (mcg/dL)." Let's say 133 mcg, the average.

"An adult will have approximately 1.2-1.5 gallons (or 10 units) of blood in their body", Let's say 1.35 gallons.

How many dL per gallon? 37.8541. X 1.35 gallons = 51 dl

51 dl x 133 mcg/dl = 6,780 mcg, or 6.7 mg of copper in the total blood volume of the average

human.

This is just under 10% of the total body average of 72 mg of copper in the average person's body.

Measuring copper in the blood is not the same as measuring copper in the body. Copper levels in the blood can increase dramatically in response to pregnancy, hormones, and sickness. It does not mean a person is copper toxic. But that's how they interpret the data, based on their bias, and lack of knowledge of what copper does.

They would also need to provide a mechanism of action on how high copper is toxic. They have none, as they admit, saying "Regardless of the mechanisms involved..."

"Regardless of the mechanisms involved, the correlation between hypercupremia and schizophrenia is well documented."

The idea that high copper causes schizophrenia, has since been discredited. This study is also from the orthomolecular guys, who are high vitamin C advocates. The current editor is Andrew Saul, who learned from Abram Hoffman, who I mentioned earlier had an anti copper bias. We are reading it here. I watched Andrew Saul's Masterclass on Vitamins and Minerals. There was not one positive word on copper. Nothing negative, either. Like it just did not exist. I thought it was very strange at the time. Now I'm learning probably why they have the bias.

Finally, they get to potential causes:

"Intoxication

The most common route of copper intoxication appears to be through the ingestion of contaminated drinking water."

Again, this would be an indication of high fluoride, not high copper. Again, the average person has 2600 mg of neurotoxic fluoride, and 72 mg of nerve healing copper. Why blame nerve healing copper instead of neurotoxic fluoride? That makes no sense.

They theorize that copper supplements containing 2 mg of copper contribute to "copper intoxication", and that smoking increases copper as well. This is only an idea, not a fact or proof. I have already refuted it. That is low copper.

Again, they never gave anyone copper supplements, and then caused any disease.

All of their "case studies" show people who were given drugs that increased copper in the blood. It is the drugs, not copper, that cause problems. Copper increases in the blood, in my opinion, as the body attempts to detox the drugs. Why then, would "copper lowering" Vitamin C and Zinc help to solve the problem? Vitamin C and zinc are also good detoxifiers. The problem was toxicity, drug toxicity, not copper toxicity. Copper, as I have shown, is a detoxer, especially as copper and zinc help make SOD, which helps detoxify everything.

Example. One case study, a woman took Hydrochlorothiazide.

https://www.medicalnewstoday.com/articles/hydrochlorothiazide-oral-tablet#side-effects

Two of the side effects are effects of copper deficiency.

--tingling in your hands, legs, and feet

--photosensitivity (a condition where your skin is more sensitive to the sun)

Copper rising in the blood is the body's attempt to heal these symptoms of copper deficiency, which are nerve damage, and sun sensitivity.

Not once in their entire 11-page paper did they prove that copper caused any toxicity.

Of course, it is easy for me to say this now. I have access to the internet. They did not.

CHAPTER 76: 30 CASE REPORTS OF “COPPER TOXICOSIS”

These are Case Reports from:

National Research Council (US) Committee on

"Copper in Drinking Water".

Washington (DC): National Academies Press (US); 2000.

https://www.ncbi.nlm.nih.gov/books/NBK225400/ Table 5-1

https://www.ncbi.nlm.nih.gov/books/NBK225400/table/ttt00001/

I break down, summarize, and categorize those 30 reports, as follows:

Copper in tap water (likely fluoride) (7)

Copper from a boiler, post-1945 (likely fluoride) (4)

We can eliminate those where fluoride is a significant factor, and the copper is too little to cause any problems.

Copper vessels and acid foods (apples, lemons) (3)

Copper contamination in acidic pickles: (1)

We can eliminate the copper vessel/acids/vinegar, as the amount of copper is unknown, and this is not from taking supplements.

Copper Sulfate in suicide attempts: (9)

Copper sulfate, accidental: (6)

Total: 30 reports; many reports were multiple people (such as multiple reports of suicide with copper sulfate).

The copper sulfate reports are suicide attempts in the range of taking 20,000 milligrams.

The reports are not organized in any meaningful way. They are listed by date, not by the amount of copper taken. They lump in 20,000 mg doses of copper of intentional suicides, listed right along with 0.3 mg doses of copper that include fluoride.

They mix reports of mild nausea with reports of death. You can't compare the two. There is no cohesive theory of copper toxicity.

And how many reports are there from Copper poisoning from knowingly and specifically taking a copper supplement such as copper chelate, copper glycinate, or any other copper supplement: 0

That zero speaks volumes. They could not find one single case. Thank you!

This report compilation is important because it is a part of the government's report.

I have already mentioned it several times in this book because I think it's important. After all, there is so little data in humans at high levels.

But one toxic report in that report is of a man who took 2000 mg of copper daily for 4 months. It resulted in NO LIVER DAMAGE! He developed abdominal pain and hemolytic anemia. I think he likely blocked his iron with so much copper. But this goes to show how much copper can be taken. It's far higher than the upper limit. And if I ever had to take that much copper to prove copper is safe, I would take plenty of other supplements, such as more iron, Vitamin C, Zinc, Molybdenum, B vitamins, Niacin, Boron, Iodine, etc.

"Roberts 1956 M, 24 yr, 1 ≈ 400 g of $CuSO_4$ in water over a 4-mo period (≈ 2 g Cu per day) Abdominal pain, hemolytic anemia"

CHAPTER 77: CHRONIC COPPER SULFATE TOXICITY IN ANIMALS: 1000'S OF MGS/DAY

http://npic.orst.edu/factsheets/archive/cuso4tech.html#chronic

Under "Chronic Toxicity: Animals" there are references to 8 animal studies. Each one is a study giving animals thousands of mg of copper per day. I presume they could not show harm at significantly lower doses, say in the range of 100's of mg per day. Except one. Sheep given 645 mg to 1,660 mg copper sulfate per day died.

These are extremely high doses, especially given daily.

The human studies listed, in contrast, never go beyond 8 mg per day, and the only problem at those levels is nausea. No liver problems, no death.

Toxicological Profile for Copper

https://www.atsdr.cdc.gov/ToxProfiles/tp132.pdf

p. 15: "Adverse liver effects have been observed in rats exposed to dietary copper levels that were more than 100 times higher than the nutritional requirement. The liver effects included inflammation, necrosis, and abnormal serum chemistry markers of liver damage. Rats appear to develop a tolerance to copper doses of 180–<550 mg Cu/kg/day. Tolerance is defined as “the ability to endure the continued or increasing administration of a toxicant and the capacity to exhibit less response to a test dose than previous.” As the levels of hepatic copper increase, so does the severity of the damage until peak copper levels are reached. After about 3–5 weeks of exposure, the copper levels begin to decline and are maintained at a steady level for the remainder of the exposure period. When the hepatic levels decline, regeneration of hepatic tissue is observed, and continued exposure or exposure to higher doses does not result in more tissue damage.

The decline in hepatic copper levels and regeneration of damaged tissue occurs early at higher doses. At doses >550 mg Cu/kg/day, the liver becomes permanently overloaded and chronic hepatitis develops."

As you can see, they progressively gave more and more copper until it killed the rats, and found the top dose: >550 mg Cu/kg/day.

These are extremely high doses. They actually prove copper is safe, not that it is toxic.

Why don't they ever give doses to determine the optimal level of health? Why aren't studies like that making headlines?

CHAPTER 78: COPPER TOXICITY FROM COPPER IUDS?

How much copper is released by a copper IUD per day?

"The average release rate of the TCu-200s was 43.8 μg/day from the 21st up to the 41st months of use." Source: https://www.sciencedirect.com/science/article/abs/pii/S0010782476800054

This is 43.8 micrograms of copper released by an IUD per day. Translated into milligrams, it is .04 milligrams a day. This is 4% of 1 milligram. Super tiny.

In contrast, I apply up to 80 to 90 mg to my skin, which is 80,000 mcg, which is about 2,000 times more copper than the about 40 mcg released by a copper IUD per day.

Real copper toxicity is at 20,000 mg per day, which is half a million times more copper than the 0.04 mg released from an IUD.

Copper IUDs do cause many problems, but the mechanism of action could not possibly be "copper toxicity" because it's not nearly enough copper to create problems.

I went into a "copper toxicity from IUDs" forum on Facebook and the discussion went a lot like this:

Counterargument: "But the IUD is ionic copper, or copper oxide!" Yes, and those forms of copper are not more toxic, and are also used as supplement forms of copper, they are perfectly safe.

Counterargument: "Math has no power over my uterus!" Actually, it does, because amounts matter.

Counterargument: "Tell me more about how your copper IUD affected your man-uterus!" Um. No. I'm trying to help you.

Counterargument: "Yes, but why did I feel better after chelating copper with vitamin C and zinc." Because Vitamin C and zinc are good for you. But copper deficiency is not good for you, and you just created a new problem.

Counterargument: "How dare you deny our symptoms!" I did not deny any symptoms, I'm denying that copper could be the cause of those symptoms, there is a difference.

Counterargument: "But why is it that I can't think straight anymore since I had the IUD?" Because you are now copper-deficient from trying to detox copper when that was not your

problem, and copper is needed by the nerves and brain so that you can think straight.

CHAPTER 79: TOXIC COPPER CAUSES FIBROMYALGIA?

The number of people and articles blaming vague and unexplained symptoms and diseases on copper toxicity is endless. But at some point, my examples and refutations must end.

https://danpursermd.com/blogposts/copper-toxicity

Dan blames copper, from hummus in Indian food, for causing copper toxicity, a flare-up, and fibromyalgia pains. Just about everything in that article is wrong.

First, chickpeas are not even a high copper food.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5188421/

Says 100 grams of hummus (that is 3.5 ounces, about a cup, or large serving size) has 0.5 mg of copper. Again, I take 30-70 mg of copper. If copper caused fibromyalgia, I should not be able to move, and I should be in screaming agony all the time. But I'm more pain-free than at any time in my life, including my ski racing days of extreme athleticism.

Second, Indian food is often high in curry, turmeric, or curcumin, which blocks copper.

Third, copper does not cause "flare-ups". Instead, copper is anti-inflammatory.

Fourth, copper is great for muscles, and muscle recovery. I would suggest that copper deficiency is the cause of fibromyalgia pains.

Here is a case study of a woman who took too much zinc, developed copper deficiency, increased leg pains, and had fibromyalgia.

https://pubmed.ncbi.nlm.nih.gov/32445306/

This next study shows that fibromyalgia patients had more copper and less calcium, magnesium, and less zinc than people without the disease.

https://www.iasj.net/iasj/download/4addece2b43883a8

That study, or similar ones, could be the source of the confusion. But as always, this study is correlational, not an intervention study. Nobody was given copper supplements and then developed fibromyalgia. There is no understanding among copper toxicity believers that perhaps the body of a person in pain needs more copper to help them heal.

How else can I exist as a data point? I have less pain in my body, joints, and muscles than ever

before. Why? I believe copper has eliminated many fluoride deposits, which are largely responsible for muscle aches and pains, and because copper is great for the body in many countless ways.

Finally, maybe the guy in Dan's example was allergic to chickpeas. And then, they wrongly blamed copper, because of their anti copper bias and lack of knowledge of what copper actually does. Mistakes happen.

CHAPTER 80: PROPOSED BIOLOGICAL MECHANISM FOR “COPPER TOXICITY”: OXIDATIVE STRESS?

I write "proposed" because that's all they have. Ideas. All of their ideas are obviously faulty, imagined, contradictory, and unsubstantiated. I will quickly review and refute these ideas in the next few chapters.

I believe the most common proposed biological mechanism for copper toxicity is the theory of "oxidative damage". I do not believe the theory, because copper actually acts as an antioxidant according to the studies.

There are many problems with the theory of oxidative damage.

First, athletes who breathe a lot of oxygen show no damage.

Second, there are many oxygen therapies with raving testimonials, ranging from hyperbaric oxygen therapy, H2O2 therapy protocols, ozone protocols, and hydrogen peroxide injections, and athletes breathing pure oxygen on the sidelines of football games. No damage.

Third, the theory was proposed by the World Health Organization, which has been repeatedly exposed as notorious liars. I believe they created this theory to explain the damage caused by mercury and aluminum, and then as a side bonus, they could slander oxygen and copper. But the trouble with lies, they do not hold up under examination.

Exposure to Inorganic Mercury Causes Oxidative Stress, Cell Death, and Functional Deficits in the Motor Cortex

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5962769/

Aluminum overload increases oxidative stress in four functional brain areas of neonatal rats

https://jbiomedsci.biomedcentral.com/articles/10.1186/1423-0127-19-51

"Although aluminum (Al) is a relatively low redox mineral, it can induce oxidative damage through multiple mechanisms."

I fail to understand why oxygen is blamed for what mercury and aluminum do. They are different elements! Why not just blame mercury and aluminum? It's a "slander theory". Heavy metals disrupt all sorts of things. Have you seen the video of neurons shrinking away from mercury?

https://www.biodentalhealing.com/blog/mercury-damage-neuron-toxicity-video/

Getting back to the oxidative damage theory. Show me the control group of humans not exposed to oxygen. The atmosphere is 21% oxygen. Our bodies are 60% oxygen or more. It's a ridiculous theory. I don't even think it rises to the level of the word "theory". Sorry.

Others also call the idea of oxidative stress into question.

Role of oxidative stress in diseases needs to be re-evaluated: Preventive detention for oxidizing agents

https://www.sciencedaily.com/releases/2012/12/121217102653.htm

"These results mean that -- contrary to previously held beliefs -- the level of oxidative glutathione does not indicate whether or not a cell is under oxidative stress. Therefore, it is important to re-evaluate prior studies that have established a link between oxidative stress and various diseases based on the conventional method."

Furthermore, since copper creates many antioxidants, and has an antioxidant effect on the body, and since "oxidative damage" is implicated in many diseases, this really is an argument in favor of copper supplementation, not against it, and not in favor of copper toxicity. See, those who are against copper can't even get their mechanisms of action correct.

In court, people testify and are then cross examined to see if they can get their story straight. They fail on this one.

And this brings me to my last point. The medical establishment does not even believe their own theory of oxidative damage. Supposedly, it really kicks in when people are dying. But they never do administer loads of antioxidant vitamins and minerals, or antioxidant foods and herbs, or copper, do they? No, they don't. So if they don't act on, and don't believe in their own theory of oxidative damage, why should you or I?

CHAPTER 81: AMALOYD PLAQUES IN ALZHEIMER'S?

Amaloyd plaques are said to be misformed proteins. But copper is essential to making proteins. The only evidence for copper "causing" Alzheimer's is "associative" and "linked". They have not determined causation. It is just as valid, if not more valid, to say the body puts copper to where it is needed to heal, but it can't do the job when there are too many other toxins and/or not enough other nutrients. And copper helps the nerves in at least 15 ways, refuting their idea. Again, they never give copper to subjects who then develop Alzheimer's. They neglect to mention all of the real neurotoxins that are actually implicated in Alzheimer's. Copper actually is more likely to cure the disease they claim it causes. See also my chapter on Alzheimer's.

CHAPTER 82: CANCER, WILSON'S & INDIA?

Yes, copper can stimulate blood vessel growth. But blood does not cause cancer. Blood would help to heal cancer. Besides having cancer-curing properties, no copper given at high levels has ever caused cancer, and they regularly test animals with thousands of times more copper than they would ever give to humans, and it never causes cancer.

Copper detoxes, which would help cure cancer. Copper is antifungal, and that would help cure cancer. Copper increases metabolism, and that would help cure cancer. Copper actually cures the disease they claim it causes. And their proposed mechanism of action does not make any sense. See also my chapter on Cancer.

Can high copper and low copper have the same symptoms? This argument is where they claim high copper symptoms are the same as low copper symptoms. This only happens in people with Wilson's Disease, who actually suffer from low copper in the blood, and low ceruloplasmin, which explains it better. It's really low copper causing low copper symptoms. This is not a result of high copper. Copper, in high amounts, has not been studied in humans, not above 20 mg/day. Above that, there are only case studies and the testimonials of my friends. We all love copper.

Does copper cause really cause liver problems? This only happens in people with Wilson's Disease, and people who take 20,000 mg of copper. I already covered the first two. There is a third group, children in India whose mothers boil milk in copper pots. The kids in India have so many co-variables that make drawing a conclusion such as "copper as a cause" both impossible and inapplicable.

First, there is never any mention of how many milligrams of copper they get from this source. Second, kids in India are afflicted by poverty and pollution at levels that are shocking to American standards. Trying to look up how much copper milk might contain if cooked in a copper vessel gave the following result:

COPPER IN DAIRY PRODUCTS AND ITS SOLUTION

IN MILK UNDER VARIOUS CONDITIONS

F. E. RICE ANY J. MISCALL

Department of Chemistry, Cornell University, Ithaca, N~w York

Received for publication March 20, 1923

p. 265

"Upon pasteurizing milk in a copper vessel at 145°F. for one-half hour Hess (8) found the milk to contain "three or four parts of copper per million."

Translated, this is 3 - 4 mg of copper per liter. Kids do not even drink entire liters of milk. Maybe half that, so they get 1.5 to 2 mg of copper, if even that much? This is negligible and too small of an amount of copper to create any negative effects on the liver.

The other classic way to slander a mineral or vitamin is to examine examples of low copper, but then blame it on "high copper" and "copper toxicity" as the cause. They do that with the copper in the milk in India issue, and the copper in IUDs issue, copper in fluoridated and chlorinated water, and in various other biased studies.

In another study that comes to mind, they looked at 0.13 mg of copper given with lots of cholesterol and then blamed the copper for causing Alzheimer's. But cholesterol blocks copper, and it's not nearly enough copper. They actually proved that copper deficiency causes Alzheimer's!

The other way to slander copper is to blame copper when there are other heavy metals present.

Another way they slander copper is to give a person drugs, then watch copper levels rise, as the body moves copper into an area to help heal it, and then blame copper, rather than the poisonous drug.

CHAPTER 83: MECHANISMS OF TOXICITY AT 1000'S MG DOSES IS UNCLEAR

https://www.atsdr.cdc.gov/ToxProfiles/tp132.pdf

p. 78:

"3.5.2 Mechanisms of Toxicity

Although a number of studies have investigated the mechanisms of copper hepatotoxicity in rats, it is not known whether rats would be a good model for human liver toxicity unrelated to a genetic defect in copper metabolism."

"The mechanism by which copper accumulates in the nucleus and the mechanisms by which it provokes injury are not clear."

"Numerous studies have shown that rats can develop tolerance to high levels of copper."

"It is believed that the mechanism involved in tolerance development is the increased synthesis of metallothionein (Evering et al. 1991a, 1991b; Freedman and Peisach 1989)."

I like this because when I say they have no valid mechanisms of action for toxicity, it's only because they admit they have no mechanisms of action for copper toxicity.

In fact, this is another protective mechanism of action against copper toxicity, as taking more copper increases metallothionein, which helps to detox copper. Metallothionein also helps to detox other good metals such as zinc and selenium, and toxic heavy metals, specifically, mercury, cadmium, silver and arsenic, which is an important point to synthesize and bring together.

From https://en.wikipedia.org/wiki/Metallothionein

"Metallothionein (MT) is a family of cysteine-rich, low molecular weight (MW ranging from 500 to 14000 Da) proteins. They are localized to the membrane of the Golgi apparatus. MTs have the capacity to bind both physiological (such as zinc, copper, selenium) and xenobiotic (such as cadmium, mercury, silver, arsenic) heavy metals through the thiol group of its cysteine residues, which represent nearly 30% of its constituent amino acid residues.[2]"

Metallothionein "production is dependent on availability of the dietary minerals such as zinc, copper, and selenium, as well as the amino acids histidine and cysteine."

Metallothionein also detoxes bismuth:

https://www.sciencedirect.com/topics/neuroscience/metallothionein

5.5.2 Metals and Metallothionein

Metallothionein (MT) comprises a family of low-molecular-weight (500–14,000 Da) proteins localized to the Golgi membrane. By virtue of its high cysteine content (about one-third of amino acids), MT binds heavy metals such as zinc (Zn), cadmium (Cd), copper (Cu), mercury (Hg), and bismuth (Bi).

Who knows what else Metallothionein could detox?

What we see here is that if rats can become tolerant to higher copper, so can humans. So scale up slowly. It takes 3-4 weeks to develop a tolerance.

CHAPTER 84: WILSON'S DISEASE

Wilson's is a combination of both liver damage and nerve damage. Both are symptoms of copper deficiency, as we saw previously in chapters 59 and 60.

I was going to list Wilson's Disease under the topic of diseases, however, those are the major diseases, the most frequent and most common causes of death.

In contrast, Wilson's Disease is extremely rare, only about 1500 to 2000 people have been diagnosed in the USA out of about 330,000,000 people. So it's about 1 in 200,000. Some say about 1 in 30,000 or more, with the thinking that many are simply not diagnosed.

It may be important to view what "nerve damage" looks like in Wilson's:

https://www.youtube.com/watch?v=NLWuegkn17c

Jerky movements and loss of speech are mere words that cannot describe it.

In Wilson's Disease patients, copper accumulates in the liver. From this, it is thought that copper is becoming toxic to these individuals.

But as we have seen, copper accumulates in a lot of tissues that need more copper to heal, such as in brains in Alzheimer's and Autism, and in kidneys that have been poisoned by mercury, etc.

Wilson's patients are low in copper in the blood and low in copper in the rest of the body, and low in ceruloplasmin. It has been said by many others that Wilson's Disease is more appropriately characterized as low copper, not high copper.

It is said Wilson's patients have a gene malfunction preventing its excretion from the liver via the bile duct into the gallbladder and on into the intestines.

Genes turn on and off under a wide array of conditions, as bodybuilding affects 2/3rds of genes, and mere mineral supplementation affects many genes.

So, they accumulate copper in the liver at least five times more, which is an increase from about 7 mg in the normal person to 38 mg. And yet other sources claim they have chelated out up to 2000 mg of copper in a day from a Wilson's patient. So there is potentially a wide range.

Copper supplements have never caused anyone to "catch" or "turn into" a Wilson's Disease patient. Wilson's is said to be geneic. I say "said to be", because even if something is in the genes, does not mean it is genetic. When the genes can't make a certain mineral enzyme without the mineral, the genes often can in the presence of the mineral.

I think Wilson's could be toxicity from things other than copper, that disrupt copper metabolism.

The idea that copper is "toxic" and the "cause" of problems in Wilson's patients is an idea that was formed in 1945. Also, in 1945, they added fluoride to the water supply. Also in 1945, they "falsely discovered" that iodine, at extremely low levels can cause thyroid problems, rather than cure them. In other words, we should not rule out the possibility that there was a campaign to smear the best two antidotes to fluoride: copper and iodine.

The smear is the same in both cases. Without any data, and contrary to the data, and based on hypothesis only, and poorly articulated mechanisms of action, copper is said to cause the very disease conditions that it cures, liver damage, and nerve damage. And iodine cures/causes thyroid problems. And, in both minerals, they supposedly cause problems at extremely low levels, or in the case of Wilson's, simply accumulating background copper, without any supplementation whatsoever. This simply redefines "deficiency" as "excess / toxicity".

The many “faces” of copper in medicine and treatment

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4113679/

"Wilson’s disease (WD) is an autosomal recessive genetic disorder, and is caused by disabling mutations in both copies of the ATP7B gene. This gene is responsible for copper’s transfer into the secretory pathway for both binding into Cp and excretion into the bile (Brewer 2000)."

How do they know about mutations in the ATP7B gene? PCR sequencing, which has recently been in the news, and fully discredited to anyone who does their own research.

https://bmcmedgenet.biomedcentral.com/articles/10.1186/s12881-018-0619-4

"The entire coding region and adjacent splice sites of ATP7B gene were amplified and sequenced by Sanger method."

What is the Sagner method? Good old PCR!

https://www.sigmaaldrich.com/US/en/technical-documents/protocol/genomics/sequencing/sanger-sequencing

"The DNA sequence of interest is used as a template for a special type of PCR called chain-termination PCR."

In other words, I don't trust it.

Therefore, "Wilson's Disease" might be merely a description of the coincidence of copper deficiency induced liver damage and copper deficiency induced nerve damage.

Wilson's patients, having low copper in the blood, suffering from low copper symptoms such as nerve degeneration, are then given penicillamine, which chelates their copper, and has the side effect of causing many other low copper symptoms, such as liver damage!

Wilson's Disease is also characterized by low ceruloplasmin, but they don't have zero. But fluoride and Vitamin C lower ceruloplasmin.

Potentially, many other toxins or nutritional deficiencies could lower ceruloplasmin, especially in combination.

Things that help build ceruloplasmin are Vitamin A, exercise, copper, and boron.

Molybdenum is one of the newer treatments for Wilson's because it also lowers copper.

One patient with Wilson's was successfully treated with Vitamin E

VITAMIN E IN THE TREATMENT OF WILSON'S DISEASE
https://journals.lww.com/jpgn/fulltext/1996/10000/12_vitamin_e_in_the_treatment_of_wilson_s_

This nutritional assessment of Wilson's says that those without Bile flow are low in Vitamin A and Vitamin E.

Nutritional assessment of children with Wilson's disease: single center experience
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6952467/

"Vitamin A and E are lower in patients with cholestasis than without cholestasis ($p<0.05$)."

In the introduction to this book, I quoted a study on pigs that said Vitamin E protected them from copper toxicity.

Taurine increases the liver's copper metabolism:

Effect of taurine on toxicity of copper in rats
https://pubmed.ncbi.nlm.nih.gov/9609396/

"The level of copper in the faeces of rats treated with taurine and copper was higher than that of rats treated with copper alone."

A diet of 5% taurine increases the excretion of copper.

Taurine is an amino acid, a part of a protein.

Since Wilson's patients have difficulty excreting copper, this might help them.

My prior article on Wilson's Disease:

https://revealingfraud.com/2020/05/health/thoughts-on-wilsons-disease/

I believe it is likely that Wilson's patients need to try to increase their ceruloplasmin.

They are chelating copper anyway as part of their therapy, but like everyone, they do need copper and do suffer from both copper deficiency and copper build-up. But only treating it as a toxin, rather than also a nutrient, seems to be a mistake.

After all, they do not have a superpower to make better use of copper than other people. Instead, they have less ability to use copper.

They may also benefit from the many other natural copper antagonists, as zinc is not the only one. See my chapters on the causes of copper deficiency.

I wonder if they may also be suffering from excess fluoride toxicity or other possible toxins that block ceruloplasmin production. I found no papers on Wilson's and fluoride. Shocking. Nothing out of 8,736 papers on the subject.

https://pubmed.ncbi.nlm.nih.gov/?term=Wilson%27s+Disease+fluoride

no results

https://pubmed.ncbi.nlm.nih.gov/?term=Wilson%27s+Disease

8,736 results

Additional thoughts:

1. 2600 mg of fluoride in the average human body.
2. 72 mg of copper in the average human body.
3. 10% of copper is in the liver.
4. Therefore, 7.2 mg of copper in the normal human liver of 2.2 pounds.
5. Wilson's people have "500%" more copper in the liver; supposedly "toxic copper".
6. 500% more than 7.7 = 38.5 mg copper in Wilson's disease livers. Is that toxic?
7. Cow's liver has 64 mg copper per pound.
8. A human liver is about 2.2 pounds. Cow liver has 140 mg copper if it was the size of a human liver.

Note. I had to do a lot of study on copper to determine how much copper is in the average liver.

I have never read anyone mention that the average human liver has about 7 mg of copper. I'm rather shocked by how much more liver is in a cow liver than a human liver, at 20 times higher copper concentration. I'm also shocked that cow's milk contains so much less copper than human milk, human milk has 5 times more copper.

Copper Sulfate Technical Fact Sheet

http://npic.orst.edu/factsheets/archive/cuso4tech.html

This line by the government is important: "Exposure to copper sulfate does not cause Wilson’s

disease."

I have also never heard or read of any instance of any person with Wilson's Disease taking copper supplements and getting worse.

I fail to see how 500% more copper, or 38 mg of copper in the liver, instead of about 7.7 mg, would be so toxic. As an example, I have taken 100 mg of copper in a day. I have applied about 90 mg of copper to my skin. My digestive tract and my skin are better for it.

People with Wilson's appear to do better when they improve ceruloplasmin production, which does help process copper better.

There are more copper antagonists than just zinc and molybdenum. See my list of 45+ of them in chapter 24 of this book. I believe people with Wilson's Disease may well benefit from many other natural copper blockers that help excrete copper. They may also benefit from some copper, as nobody appears to benefit from copper deficiency.

Finally, as I was editing this book, I remembered something and made a connection. People given mercury had a 7 fold increase of copper found in the kidney. This sounds a lot like the 5 fold increase of copper in the liver in Wilson's. It is not a stretch to note the similarity. It might be possible that Wilson's could be cases of "generalized poisoning", which their bodies are attempting to detox with more copper. The medical establishment actually poisons people with medicine. Thus, they are not very good at recognizing poisoning, nor are they good at recommending detoxing protocols, such as copper as a detoxer.

Additionally, as I was editing this book, I re-read that children have from 7-10 times more copper in their livers than adults. So, healthy kids have more copper in their livers than people with Wilson's. So, how then is copper toxic? Kids should be dropping dead if the copper in the liver was the cause. So 5 times more copper in the liver could not possibly be toxic, and could not possibly be the cause of problems.

I suspect it could be another toxin or a combination of toxins. I suspect it could be multi-generational copper deficiency, as multi generation copper deficiency results in a diminished ability to process copper.

Again, copper helps make metallothionein, SOD, ceruloplasmin, glutathione, and other detoxing enzymes.

Again, the protocol for Wilson's is penicillamine and zinc. Penicillamine also detoxes other toxins, as does zinc. Perhaps this is why these other detoxers tend to work a little bit.

Since medical science has no cure for Wilson's, their protocols should probably be modified, by someone, at some point, although I do not expect innovation to come from the medical establishment.

And I fail to see how induced copper deficiency would benefit anyone suffering from copper

deficiency symptoms: liver damage and nerve damage.

And if copper could help people with Wilson's, for the reasons I indicated, because copper is a vital detox agent, then the arguments for "copper toxicity" really really fall apart.

And since some people with Wilson's have up to 2000 mg of copper being excreted in one day, how could an additional 3 mg of copper, or 10 mg of copper really hurt them?

There are always two ways people can interpret data. If the bodies of people with Wilson's are holding on to up to over 2000 mg of copper, maybe their bodies are signaling to us that they want or need more copper? Why not respect the wisdom of the body and assist the body in what it is trying to do, IE, retain copper?

Another way to consider this, is if they can obviously tolerate 2000 mg of copper in total within their bodies, why not let them chelate it, and then give them 20 mg of copper for 100 days, and see how it goes? They can't absorb more than 100% of intake. And they can always chelate copper again.

And since Wilson's is a liver disease, and since historically, copper is a cure for liver disease, and since liver is a food high in copper, why not let or encourage them to eat liver to cure their liver problems? This is not rocket science. It's obvious. I continue to look for evidence that a person with Wilson's Disease was harmed by taking copper or eating liver. So far, I have not found any. I have only found the ideas that only somewhat work: penicillamine and zinc.

And finally, since copper helps make so many detoxing enzymes, how can it be toxic?

It is likely that other toxins are implicated in Wilson's Disease. It is likely that they need to detox. It is likely that copper is needed to help everyone detox. It is likely that the body would turn off a gene needed to excrete copper for a reason, and on purpose, as the body would want more copper to help it detox.

Here is the big point. Since copper is a major detox mineral, and since people with Wilson's are not processing copper well, then smaller amounts of every toxin would be more toxic to them. So it would be nearly impossible to "test them for toxins" because toxins at much lower levels than normal would hurt them more, as they are not processing copper well enough to detox.

I finally found what I was looking for!

These researchers in 2011 are claiming that copper can cure and fix the gene responsible for causing Wilson's, the ATP7B gene:

Cellular copper levels determine the phenotype of the Arg875 variant of ATP7B/Wilson disease protein

https://www.pnas.org/content/108/13/5390

"Bioavailable Copper Is Essential for ATP7B-Arg875 Rescue."

In other words, copper fixes the ATP7B malfunctioning gene in Wilson's.

"We demonstrate that cellular localization, stability, and activity of ATP7B-Arg875 greatly depend on available copper. At a basal copper level, Arg875-ATP7B resides in the ER and shows no copper delivery to the TGN-located enzymes, whereas when more copper is available, it traffics to the TGN, restoring copper delivery. Thus, copper fluctuations may greatly influence the phenotype of this variant."

In other words, taking copper restores copper metabolism.

"Our results suggest that individuals with the same mutation on the Arg875 background may have the WD phenotype under certain conditions, such as copper deficiency."

In other words, copper deficiency is a likely cause of Wilson's Disease!

Svetlana Lutsenko followed up her own research in a 2016 paper, identifying that retinol, (Vitamin A), improves copper uptake, and Wilson's.

Activation of liver X receptor/retinoid X receptor pathway ameliorates liver disease in Atp7B(-/-) (Wilson disease) mice

https://pubmed.ncbi.nlm.nih.gov/26679751/

This is a huge discovery because it proves that copper is not toxic, but vital, in patients with Wilson's disease. Thus, the last pillar of supposed "copper toxicity" at low copper intake levels has fallen.

This really should not be a bombshell. Genes make enzymes. All the other copper enzymes need copper to function. And the other "gene copper disease" ATP7A, Menke's disease, is treated with copper.

Wilson's is extremely rare, such as 1 in 200,000. And how common is copper deficiency by comparison? Very common. It is at least 160,000 in 200,000. Maybe even 200,000 in 200,000.

CHAPTER 85: THE WAY COPPER-DEFICIENT PEOPLE THINK

I halted the final editing of this book for about 2 days to share the Wilson's Chapter with people adversely affected by Wilson's Disease in a Facebook forum. Unfortunately, it did not go well. It was worse than when I tried to convince people in a "copper toxicity from IUD's" forum that it was not nearly enough copper to hurt them.

I have had discussions with various copper-deficient groups in the last year, as well as individuals. These are people who induced copper deficiency in themselves willingly, by believing the false narrative of copper toxicity, and those who ended up copper deficient by unknown causes. The characterization below is very generalized, and applies to people in many forums, all over. Some of my friends say I'm describing liberals, and trolls with these generalizations.

Remember, copper is needed for proper nerve and brain function in at least 15 ways, maybe more.

Copper deficient people, (including Wilson's sufferers) act like they are brain-damaged. And they are. It is not politically correct to say that.

Nearly universally, they are incapable of reasoning, logic, or detailed examination of issues.

They confuse fact and opinion.

They think my difference of opinion is proof of my ignorance.

They believe in censoring different views.

They confuse cause and effect. They think effects are proof of a specific cause, and can not imagine other possible causes that could also cause the same effect. They think questioning a cause is the same as denying effects or denying their symptoms.

Denying symptoms would be equated to denying someone's disability.

They have an inability to understand or mention numbers.

They think inventive slander is a viable form of argumentation if they do it. They have no problem lying about me, and repeatedly claim I'm lying, but cannot explain what I'm lying about.

They have quick tempers, getting offended and angry easily.

They engage in psychological projection and have no introspective capacity.

They are hostile, mean-spirited, despise knowledge, and cannot admit they could possibly be wrong.

They demand links as proof but are unable to read or understand them.

They fail to be able to provide links or studies or even reasons proving up their beliefs.

Their "reasoning ability" does not extend beyond repeating very short slogan-based narratives, and they do not do that very well.

If I point out logical fallacies of their slogans, then they really go off the rails. The argument ends, and they resort to slander. I must be brainwashed, stupid, or so stupid that I can't even remember their slogan-based narratives.

The discussions are almost exactly like the movie, "Idiocracy," where the smartest man in the world tries to talk to the people into putting water on the plants, instead of Brawndo. They reply with nonsense like, "Water. Like out of the toilet? But Brawndo's got electrolytes! This guy's stupid!"

A 2-minute clip of the scene from the movie, "Idiocracy": https://www.youtube.com/watch?v=ZMHfBobgLSI

When I was copper deficient, I had similar problems. Quick temper. Difficulty thinking and thus writing. My newsletter collapsed. I never developed the worst of the thinking abnormalities, as least, not that I can remember. The worst of my copper deficiency hit me at about the time I wrote a final 40-page reply in my post-court brief to tax court, or just afterward. I could still grapple with numbers and arguments.

The surveys and government say 80% of people barely get 0.76 mg of copper, below the RDA of .9 mg.

The .9 mg is fraudulently established.

The best science I have seen suggest, through multiple ways, the minimum should be 5 mg of copper. Maybe 10 mg. Babies get about 5 mg, or the bodyweight equivalent.

So 80% of people get 10 to 20% of the copper they need. What does this suggest about the way people think and reason in our society? It's copper deficiency. It's a major problem.

The trouble with stupid is that stupid people are too stupid to know they are stupid.

The way revolutionary ideas like "take more copper" change society is not the way you might expect. You can rarely change minds that are set in their ways. You rarely change the minds of the academics; they have reputations to lose, and they are stuck seeking the validation of all their

academic peers.

Instead, it grows slowly. One person at a time. Then they convince their friends. Then they convince others. Then 1% of society enjoys the better thinking of copper. Then 2%. Then 4%. And then the public knows. The idea of copper might grow in the world of athletes. It might take off in the world of computer programmers, who need optimal brain functioning. Maybe libertarians will get it. Maybe medical freedom advocates. Maybe college kids. Maybe retired people. Maybe stay at home mothers. Who knows who will get it.

CHAPTER 86: NEARLY EVERYONE IS COPPER DEFICIENT

Copper deficiency plays a key role in nearly all of the top things people die from. This implies that nearly everyone is copper deficient. Or, at least, that by the time you become copper deficient, you will be dying, or if you are dying, you are copper deficient.

From DC Nutrition:

"The National Institutes of Health did a study showing that 81 percent of people have less than two-thirds of the recommended daily allowance of copper (of 0.9 mg)."

2/3 of .9 mg is .6 mg

I want to draw your attention to that last quote. This is the US government's official position. They say that most people are copper deficient. 81% That is an extremely high number. Those people, 81% of people, the vast majority, do not get 2/3rds of the very low RDA that is so poorly established, it cannot be said to be "established" at all.

In other words, the government takes care to make sure that prisoners get more copper than the average person!

There is significant discussion about why prisoners put on so much muscle:

https://www.google.com/search?q=do+prisoners+tend+to+gain+muslce+mass

I have a theory. Maybe copper plays a significant role?

"Another study revealed that hospital meals provide only 0.76 mg of copper per day, whereas people need 2-4 mg for health, and even more for healing."

"A study by the Food and Drug Administration showed that, in an analysis, 234 foods that constitute the core of the American diet provided less than 80 percent of the RDA of copper." (Copper is only high in liver, a food seldom eaten.)

That is another US government agency. Similar conclusion. 80% vs 81% deficient.

"So all copper studies seem to point to the majority of people being deficient."

"When we studied 228 of our patients, 165 (or 72 percent) were deficient in copper."

"So, no matter whose studies you look at over the last 20 years, there is a wealth of data showing

that copper deficiency is rampant in the United States."

Other copper researchers and MD's agree:

Copper Deficiency: Causes, Manifestations, and Treatment

Marco Altarelli MD,Nawfel Ben-Hamouda MD, MSc,Antoine Schneider MD, PhD,Mette M. Berger MD, PhD

https://aspenjournals.onlinelibrary.wiley.com/doi/abs/10.1002/ncp.10328

"...investigations conducted over the last 2 decades have shown that deficiency is more frequent than previously suspected, with devastating individual consequences and potential public health consequences."

"The patients may present with severe hematologic and neurologic complications that go untreated because copper deficiency was not considered in the differential diagnosis"

And what was previously suspected, 20 years ago? 81% of people being deficient, not getting .66% of the super low RDA of .9 mg copper/day.

Here are my educated guesses as to the reasons why most everyone is copper deficient, and most of these reasons go to show that copper deficiency is far worse than the government estimate:

1. Fluoride is in the water supply, and fluoride blocks copper. 70% of tap water is fluoridated, and about 50% of people still drink fluoridated tap water.
2. Many foods are fortified with iron, and iron blocks copper.
3. Only 15% of Americans take "copper supplements", usually as part of a multi vitamin, which contain many copper blocking substances, such as far more iron than copper.
4. There is an abundance of fake literature warning people of the mystical dangers of "copper toxicity", when they rarely specify a dose, when copper toxicity does not show up until about 20,000 mg of copper in one dose.
5. Many vitamins and minerals do not even contain copper, but do have the effect of blocking copper.
6. Many drugs block copper.
7. Foods are copper deficient, grown in low copper soils, and glyphosate blocks copper.
8. Agricultural animals are copper deficient.
9. Half of people get nauseous at 2-4 mg of copper, (likely from fluoride) and have an artificial aversion to copper, which re-inforces the false idea that copper is toxic at low levels.
10. Americans consume far too much sugar and high fructose corn syrup, which blocks copper.
11. Eating liver, the primary high copper food, has become very rare.
12. I only know of one other health guru who advocates copper. Morley Robbins. So copper advocacy is not popular. Not yet.

"Copper"

(Collins, 2011 Nov 3)

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3226389/

"Copper deficiency is the leading deficiency worldwide among nutritional diseases of agricultural animals."

If the animals are deficient, then we are deficient.

Liver is the highest copper food, by over 10 times more than anything else.

"Moreover, it is now an accepted medical fact that copper-deficient humans also suffer from osteoporosis, which can be cured with extra copper."

"Dietary reference intakes for copper were established (in 1993) (3). Based on a lack of experimental data"

"Dietary factors, including iron, vitamin C, and zinc, have been reported to exert adverse effects on the bioavailability of copper. Lead poisoning, hemochromatosis, and excessive ingestion of soft drinks produce more subtle effects. Bariatric surgery and excessive use of denture creams high in zinc are the most recently identified ways of inducing deficiency (1). "

"Deficiency occurs when requirements exceed intakes; little is known about the variability of adult copper requirements. Recent reviews of deficiency (4–6) reveal that 20–40% of cases are of unknown origin. Whether these individuals have low intakes or unusually high requirements is unknown."

There is another very big plausible explanation why animals and people, and all life on earth, might be very very copper deficient.

It is related to the question: "Why would we need to take so much copper, just to get healthy?"

It is similar to the claim made by the iodine doctors, who advocated "the iodine protocol", which I will get to later when discussing a copper protocol and companion nutrients.

The iodine doctors theorized that because iodine is highly water-soluble, it was washed out of the earth's crust during Noah's flood. They also issued a challenge to future researchers to determine if this was the case for other minerals.

Challenge Accepted. Achievement Unlocked!

We could say the same thing about copper sulfate, which is highly water-soluble. It, too, may have been washed out of the earth and into the oceans, during Noah's flood. There is a difference, and there is an explanation for this difference.

River water is higher in copper than ocean water. In contrast, iodine is concentrated in the ocean.

DC Nutrition, again!:

Copper is found in igneous rocks at 55 ppm; shale at 45 ppm; sandstone at 5 ppm; limestone 4 ppm;

fresh water at 0.01 ppm; seawater at 0.003 ppm

Freshwater is three times higher in copper than seawater! How is this possible?

In other words, if the water-soluble copper sulfates, or other copper salts, were washed into the ocean, why is it not concentrated in the ocean, like iodine is in the ocean?

Here is a possible explanation.

Copper sulfate has a rather weak bond. When mixed with magnesium, the sulfate will leave the copper and be more strongly attracted to magnesium. In the oceans, the mineral in the highest concentrations in ocean water is salt. The second highest mineral in concentration in ocean water is magnesium. This magnesium would then steal the sulfate from the copper, leaving just the copper, which may precipitate out of solution, and settle and get buried in the ocean floor.

Other copper salts may act similarly in the presence of magnesium in seawater.

Iodine concentrates in seaweed. Copper also concentrates in seaweed, giving a higher percentage of the RDA than for other minerals:

https://www.healthline.com/nutrition/benefits-of-seaweed#TOC_TITLE_HDR_2

Riboflavin: 15% of the RDI

Thiamin: 11% of the RDI

Iron: 11% of the RDI

Manganese: 7% of the RDI

Copper: 21% of the RDI

We might expect ocean bottom-feeders to be high in concentration in copper. They are.

Crab:

https://www.salcombefinest.com/blog/why-crab-is-good-for-you/

"Crab meat contains nearly 30 times the copper found in cod and 56 times that found in salmon, chicken and beef."

Clams:

https://livehealthy.chron.com/foods-highest-copper-2627.html

"Cooked clams contain a lower concentration of copper -- 585 micrograms in each 3-ounce serving"

I do NOT recommend crab or clams. I do not eat them. They also contain a high amount of other toxins. They are bottom feeders. They are not Kosher. I am not Jewish, but the Kosher laws appear to be very wise. Crab and clam also do not have enough copper to fix copper deficiency symptoms.

The food highest in concentration in copper is beef liver, as it has 64 mg of copper per pound, far above anything else. I hate eating liver. So do most people.

I believe the amount of copper contained in a pound of liver is another indication of a very safe copper level. How can advocates of "copper toxicity" at low copper levels, such as 2 mg, explain liver? People would be dropping dead after eating liver in restaurants!

CHAPTER 87: MICHAEL JACKSON'S VITILIGO WAS COPPER DEFICIENCY

Michael had vitiligo, which is a loss of pigment or color in the skin, which we learned so far is from copper deficiency. Copper helps make the copper enzyme, tyrosinase, which helps convert dopamine into melanin, which provides the color for the skin. Vitiligo affects 0.5% to 2% of the population and is likely to increase. https://www.karger.com/Article/Fulltext/506103

Let's try to count up the number of indications of copper deficiency in Michael Jackson:

https://en.wikipedia.org/wiki/Health_and_appearance_of_Michael_Jackson

"He was diagnosed with the skin disorder vitiligo (1.), which results in white patches on the skin and sensitivity to sunlight."

2. Sensitivity to sunlight is another feature of copper deficiency.

3. "At some point during the 1990s, it appeared that Jackson had become dependent on prescription drugs, mainly painkillers and strong sedatives." Pain killers lower copper.

4. "The drug use was later linked to second- and third-degree burns he had suffered years before." Michael Jackson's hair caught on fire during the filming of a Pepsi commercial. Burns lower copper:

Influence of large intakes of trace elements on recovery after major burns

https://pubmed.ncbi.nlm.nih.gov/8000154/

"Because Cu, Se, and Zn are involved in immune and antioxidative defense mechanisms and tissue repair, deficiencies might aggravate complications classically observed with burns. After measuring massive cutaneous trace element losses in 10 burn patients..."

5. "Jackson died of acute propofol and benzodiazepine intoxication after suffering cardiac arrest on June 25, 2009." And copper deficiency is a major cause of heart attacks.

6. "Lupus -- Jackson‘s dermatologist Arnold Klein said initially came to him for acne treatment. The physician recognized lupus on Jackson’s scalp at their first encounter. Klein did a biopsy and diagnosed Jackson with lupus erythematosus.[27]"

Lupus is copper deficiency.

7. Acne is fluoride poisoning that lowers copper.

"Medics cited irregular beats, gastro-intestinal inflammation, dehydration, and kidney and liver irregularities, all signs of copper deficiency."

8. Irregular heartbeat? Copper deficiency.

9. Inflammation? Copper deficiency.

10. Dehydration? Also sometimes linked to adrenal insufficiency. This is from low salt. What helps the body hold on to salt? Copper.

11. Kidney irregularities? Copper deficiency.

12. Liver irregularities? Copper deficiency.

13. "In June 1990, Jackson was admitted to a Santa Monica hospital with chest pains." Copper deficiency.

14. Orthopedic issues: "The first concert in Santiago de Chile, scheduled for October 21, 1993, was canceled due to lumbar problems." On June 5, 2005, Jackson was taken to the emergency room at the Santa Ynez Valley Cottage Hospital to seek treatment for back pain. Copper deficiency.

15. Viral infections? Copper deficiency. "Jackson "continued to need care for some persistent viral symptoms, but otherwise he was in good spirits." Admittedly, when one is in the public eye, their every move and every cold are watched.

16. Dental Issues

Several concerts in Mexico City were canceled due to tooth problems.[68] Two abscessed molars were pulled. Weak bones, and infections? Copper deficiency.

17. I note: Jackson was very thin. Copper helps growth.

18. I note: Jackson had a high-pitched effeminate voice. This indicates low testosterone and copper deficiency.

19. Depression: ""I've learned to cope better with these things and now I don't get nearly as depressed as I used to.“" Depression is copper deficiency.

I did not expect to find 19 indications of copper deficiency. I therefore do not think copper deficiency is rare. Not even the best physicians money could buy were able to diagnose Michael Jackson's copper deficiency. Copper deficiency is simply rarely diagnosed because doctors do not know the first thing about copper.

"In February 2009, Jackson had an examination performed by David Slavit of New York. Later, the broker told an AEG senior vice president Jackson had only slight hay fever and had passed the exam "with flying colors".

20. "According to BBC, his weight was in the acceptable range for a man of his height, but he had punctured arms[H 1] and suffered from lung damage and some arthritis." Arthritis is copper deficiency.

21. The document shows that Jackson's most serious health problem was his chronically inflamed lungs, but this was not serious enough to be a contributing factor to his death. Lung problems? Copper Deficiency. Inflammation? Copper deficiency.

22. Michael Jackson suffered from insomnia. In my copper deficiency days, I did, too. These days I rarely have insomnia. Two people who gave me testimonials about copper said how it helped their insomnia. Insomnia is just not in my notes about copper deficiency in this book.

I quick search just now: "Studies have shown that in case of iron or copper deficiency in the diet, it can take longer to go to sleep and the sleep they get is not refreshing."
https://labpedia.net/insomnia-and-remedies/

Look it up. I'm astonished. I'm not making this stuff up as I go. I'm learning as I go.

June 25, 2009 Michael Jackson died. May he rest in peace.

CHAPTER 88: FOOD SOURCES OF COPPER

Beef Liver has 64 mg of copper per pound. I can't advocate liver. Because I can't stand it. Tastes terrible, and the texture is worse. I freely and openly confess that I find liver to be a disgusting food. I'd rather take a copper supplement, and so, I do.

Liver is, by far and away, the best source of copper in food. No other food comes even close.

My grandparents' generation used to make sure to eat liver once a week. This rule seems to have been lost in our era, further creating copper deficiency.

Whole food Vitamin C contains many parts. At the center is tyrosinease. Tyrosinase is a copper-containing enzyme.

I don't believe in taking Whole Food Vitamin C. Mostly because it is extremely expensive, and cost and bulk prohibitive for taking potentially large therapeutic doses of each. You cannot take 100,000 mg of Vitamin C with whole food Vitamin C. And you certainly could not get 30 mg of copper.

I would rather take the very cheap "synthetic" ascorbic acid, and the nearly free copper sulfate.

Supplements are, by definition, supplements. They supplement or add to, a diet of food.

Chlorophyll supplements are chlorophyllin, which contains copper instead of magnesium. I took this one time a long time ago. The brand I bought was mixed with mint, and I hated it.

Oysters are the second-highest copper-containing food: oysters are a good source of copper, providing 7.6 mg per 3.5 ounces (16/3.5 x 7.6 = 34.7mg/pound)

Oysters and Crab have some copper, but also contain heavy metal contaminants, cause allergic reactions, and are not kosher. Oysters are not a very common food.

Copper in Beef? The copper content in raw lean cut beef ranges from 0.055 to 0.190 mg / 100g. There are 453 grams per pound, so 100 g is just under a quarter pound of beef, or a usual serving. Barely 1/5th of a milligram? So low. Beef is not a good source of copper.

CHAPTER 89: COPPER SUPPLEMENTS ARE UNPOPULAR

Far less than 1% of Americans supplement with a "copper only" supplement. I can find no data on that specifically, but I can suppose that is true from the following facts: Copper supplementation is very rare. There are almost no copper advocates in the vitamin and mineral alternative health industry. Nobody who is popular advocates "high copper" as they do for many of the other minerals, such as iodine, boron, silica, calcium, magnesium, MSM sulfur, colloidal silver, etc. Copper supplements are actually difficult to find in stores on shelves. I assume this is because they are not big sellers.

Note, none of the other "pro copper" articles I have shared in this book even say how much copper you should take. Or, they simply mention the RDA. Facepalm! Epic fail guys!

15% of Americans take a multi-mineral supplement that contains some amount of copper, usually less than 2 mg, almost all of which is primarily being blocked by the other minerals within the supplement if those minerals can even be absorbed and digested, rather than passing through the body totally undigested.

About 75% of the water in America is fluoridated. This water is usually "high copper" water, with the copper in the water regulated to no more than 1.3 mg/Liter; however, a few cities cannot meet that standard. About half of all people end up drinking fluoridated water.

Thus, it is likely that people are getting more copper from public water, containing fluoride than they are getting copper from supplements. 50% vs. 15%.

Implications of copper supplements not being popular:

1. Almost all studies of people or diseased people "with high copper" did not get that way from supplementation, but rather, likely got that way from drinking tap water, containing fluoride, chlorine, and up to 50 other toxins used to kill the germs within the water. (copper pipes and copper vessels can also kill germs in tap water!)

2. Thus, nearly all studies on people "with high copper" are likely people who are "high fluoride" and may have high levels of other toxins found in tap water, such as lead.

3. Mineral composition data says the average person is far higher in fluoride (2600 mg) than copper (72 mg).

4. People have from 4-5 neurotoxic minerals in concentrations higher than copper, and copper is not a neurotoxin because it heals the nerves in multiple ways.

5. People who "test" high copper are high compared to what? Compared to average people, who are all likely copper deficient. Copper levels in the blood tend to rise to help heal the body of copper diseases manifesting, to help those tissues get more healing copper. How could high

copper be the cause of copper deficiency diseases? No, it is only "linked". Association is not causation.

6. They never give copper to people and then end up causing diseases. They do give animals high copper, usually in ranges up to thousands of times more than they could get from a normal diet. They never induce cancer, by the way. Instead, they give low copper, 10-20 mg to people, and find no harm. No harm is exactly what you want; it is also the absence of disease.

CHAPTER 90: COPPER SULFATE

Copper sulfate is very safe and easily absorbable.

Some people might hesitate because it contains sulfur. But people have been bathing in Epsom salts since forever, and that is merely magnesium sulfate. There are also zinc sulfate supplements. Copper Sulfate has been used for healing for thousands of years. And in fact, sulfur is one of the major minerals in the body, remember the average person has about a third of a pound of sulfur in the body, or 140 grams, or 140,000 mg. That is far more than the 72 mg of copper that the average person has.

Making your own copper sulfate solution of 1 mg contained copper per drop is very easy. Just measure out the blue copper sulfate crystals and the water. You can buy blue copper sulfate crystals at amazon or any large internet retailer. I look for 99% or 99.9% pure.

Source: Search "copper sulfate fine pure"

I have seen it sold in 1 pound bags for $5, and up to 50 pound bags.

https://www.amazon.com/s?k=copper+sulfate+fine+pure&ref=nb_sb_noss_2

Or search for "copper sulfate fine 99.9% crystals:

https://www.amazon.com/s?k=Copper+Sulfate+fine+99.9%25+Crystals

It is copper sulfate pentahydrate, blue crystals.

Ingredients:

5 x 1/8th teaspoons (4.7 grams) copper sulfate pentahydrate crystals.

2 oz. of distilled water, containing 1182 drops.

Here is the math:

Source: Source https://en.wikipedia.org/wiki/Copper(II)_sulfate

In its blue, hydrous form, it is 25.47% copper, 38.47% sulfate (12.82% sulfur) and 36.06% water by mass. Source, Wikipedia, above.

There are 591.5 drops of water per ounce.

Most commercial copper sulfate is 99% pure, or 25.2% copper, not 25.47%.

4.7 grams x .252% = 1.184 grams. Close enough to 1182 mg per drop.

Copper Sulfate is extremely cost-effective because it is used in industry as follows:

https://www.atsdr.cdc.gov/ToxProfiles/tp132.pdf

"Copper sulfate was the only copper compound for which end-use distribution data were available; these data addressed only domestic producers. Sixty-five percent of production went into agricultural use, 28% for industrial uses such as metal finishing, mineral froth flotation and wood preservatives, and 7% for water treatment."

"In agriculture, copper compounds are used as fungicides and to prepare copper fungicidal products, algicides for reservoirs and streams and nutritional supplements in animal feed and fertilizers."

Copper sulfate can be found in very high purity, up to 99.9% pure, which is both pharmaceutical grade, and food-grade pure.

If you live outside the USA, and if you find it difficult to find pure 99.9% copper sulfate, or if you do not trust the purity of your copper sulfate, you can purify it. The process involves growing your own copper sulfate crystals, which will become more pure. I have never felt the need to do this.

https://www.robolab.in/purification-of-copper-sulphate-by-crystallization/

CHAPTER 91: TOPICAL COPPER SULFATE

Copper sulfate is easily absorbed through the skin. So say the toxicologists. They also say nobody has ever died from copper sulfate through the skin.

Copper sulfate applied to the skin can, in the beginning, feel like a mild burning sensation. Not much different than the topical application of magnesium chloride, also sold as "magnesium oil". Both sensations tend to wear off and are no longer felt after multiple applications.

It has been noted to not mix magnesium with copper sulfate. The reason is that it creates a reaction that generates heat. The sulfur moves from the copper sulfate to the magnesium, and this chemical process generates heat.

I have found it useful to apply copper sulfate to all areas of the skin, especially to areas that are suffering from mild aches and pains.

There is no problem applying copper sulfate to the skin while simultaneously taking magnesium supplements orally.

This appears to be far more useful and effective than topical copper bracelets and necklaces, which, if worn long enough, often leave a green residue on the skin.

Applying copper topically, greatly helped me to take more copper to get past the nausea problem that happens when taking between 4 mg to 10 mg of copper orally.

I can easily apply up to 70 to 90 mg of copper onto the skin of my entire body. I assume about 30% could be absorbed.

Copper sulphate use in South African traditional medicine

https://pubmed.ncbi.nlm.nih.gov/27060061/

"Of the 201 Traditional Health Practitioners interviewed, 145 (72 %) use CuSO4 for healing purposes."

"The reasons cited for use are diverse and included skin rashes (n = 43; 30 %), aches, pains and swelling (n = 38; 28 %) as well as sexually transmitted diseases (n = 28; 19 %)."

Copper sulfate is a light blue, and will stain fabrics. Just apply vinegar to your laundry and the stains come right out.

CHAPTER 92: COPPER GLYCINATE OR COPPER CHELATE

https://www.vitamart.ca/trophic-copper-chelazome-90-caplets

These are typical copper supplements found in stores.

$11 bottle

90 caps

2 mg each

Total 180 mg per bottle.

I used to take products like these in my first two years taking copper over 10 mg/day. However, as I worked up to taking 30 mg of copper, I began to notice the cost. I would run through a $10 bottle in 5 days at that rate, and have to buy several bottles a month. I was spending over $50/month on copper. I also began to wonder what they were using as fillers. I also did not like the taste of gritty tiny pills that begin to dissolve before you can swallow them. I began to look for a better way, and I found it in copper sulfate, which is far cheaper, and very well absorbed.

There are nearly 1500 positive ratings, and many testimonials for this product:

https://www.amazon.com/Pure-Encapsulations-Glycinate-Hypoallergenic-Supplement/dp/B000H7Y6J2

The people who give it one star usually because they vomited, and then blame the product, rather than their own fluoride toxicity levels. What else would you expect? I've never seen anyone else explain that copper detoxes fluoride.

CHAPTER 93: COPPER NIACIN

https://www.mitosynergy.com/product/mitoactivator-extra-strength/

Total cost: $89

Copper per serving: 0.5 mg

Total servings per bottle: 60

Total mg copper per bottle: 30 mg.

I have never taken the mitocynergy product.

That is extremely expensive copper for very little copper.

That is about $3 per milligram.

Compare to copper sulfate you can make at home:

Total cost: 2.4 cents per 2 oz bottle.

Copper per drop 1 mg

Total per bottle 1180 mg.

That is about $free per milligram.

Furthermore, you can take copper sulfate, and then just take any form of niacin you please. This is what I do. I occasionally take niacin, maybe once or twice a month. I have found that niacin can block copper, and that too much copper may also block niacin.

I do enjoy taking both copper and niacin together. As indicated previously, both seem to stimulate the pleasure center of the brain. Taking too much of both together can cause nausea, as each alone can cause nausea.

CHAPTER 94: COPPER CUPS

A pure, solid, copper cup costs can cost around $20 to $40.

These guys sell several copper water bottles, carafes, etc. They sell a copper cup for $12.50

https://www.copperh2o.com/collections/all-products

There are all sorts of copper mugs, cups, water bottles sold at amazon.com and other online retailers. Look for a quality, pure copper cup, not a copper-lined cup, and not a copper-plated cup. It should be copper in the interior of the cup.

Drinking water out of a copper cup adds about 0.4 mg of copper per day. A relatively low amount. Not very effective. And yet people have benefited from this practice for thousands of years. This also shows that metallic copper is not toxic.

According to Ayruveda, you should drink from a copper cup daily. It is interesting to read what Ayruveda has to say about copper's benefits. They may be getting some of what they say from modern research, too.

https://ayurvedaforbeginners.com/9-benefits-of-drinking-from-a-copper-cup/

The nine benefits, all of which we have covered in this book:

1. kills bacteria

2. helps digestion

3. aids weight loss

4. heals digestion

5. slows aging

6. regulates the thyroid

7. helps heart health

8. helps arthritis and joints

9. helps skin health

https://vasantihealth.com/blogs/news/are-you-using-your-ayurveda-copper-water-vessel-

correctly

Clean it. Let the water sit for 6-8 hours, like overnight.

CHAPTER 95: INTRAVENOUS COPPER

I read in a copper deficiency group that doctors are prescribing IV copper injections that contain a mere 0.5 mg. That is far too little copper, and extremely costly, and not needed.

It is also not well absorbed:

https://med.virginia.edu/ginutrition/wp-content/uploads/sites/199/2014/06/Copper-Deficiency-update-March-2018.pdf

"In intravenous feeding, part of the infused copper reaches the kidneys in a filterable form, and this is liable to be lost in the urine."

Part of how the body excretes copper, it is excreted by the liver, into the bile, at the top of the digestive tract. This gives the body a second chance to re-bind the copper to proteins in the food, and to re-absorb the complexed copper back into the body. This process is bypassed by injecting copper into the blood. Some have written that the amount that the body reabsorbs in the intestine is "negligible", but you never really know. Digestion appears to work better than injection.

In contrast, Copper sulfate works just fine, and for fractions of a penny, you can take 100 times more, at 50 mg. In contrast, the IV copper seems like a total scam.

CHAPTER 96: IONIC COPPER, INORGANIC COPPER, CU1, CU2, COLLODIAL COPPER, METALLIC COPPER, COPPER OXIDE

I have encountered many repeated arguments without much substance behind them such as these or those forms of copper are toxic. Especially metallic copper coming from the pipes.

First, I believe these people missed a step of insight to realize that it is fluoride that is toxic, and not the copper. I believe their attempts to explain why copper is toxic are also misguided in that they think that copper at low doses is toxic, or that the wrong form is toxic. No. It's just the fluoride. None of those forms of copper is toxic.

Second, Robert Morse says that all "inorganic" minerals are toxic. He advocates fruits. I also like fruits. I do not know if he is the main source saying "inorganic minerals are toxic", but the evidence in this book is a sound rebuke to the nonsense that inorganic minerals are toxic. Salt is inorganic. Copper sulfate is a salt. Iodine in the form of Lugol's, is inorganic. There are mountains of evidence that the body uses inorganic minerals just fine, and uses them to heal. The burden of proof is on them to prove their claims. I have proved my claims.

Third, many of these other products, especially ionic and colloidal, are different product forms. They are simply thousands of times more expensive than copper sulfate which, if you buy it in bulk, is nearly free. I have bought and tried colloidal copper a few times in my life. I never got much out of it. And I have no idea of how many milligrams of copper you can get from that particular source, and it seems it would be rather low.

On the flip side, there are always people saying this form or that form of copper is better, etc. They have to, to sell their products. They may claim this or that is better absorbed, etc. Copper Sulfate is extremely well absorbed, at about an 80% absorption rate. Who cares if another product is 10% better absorbed (copper glycinate, for example) if it's thousands of times more expensive. What you want is the best absorbed, least toxic, for the price. Nothing beats copper sulfate, and it's not likely that anything else ever will.

Nevertheless, cost notwithstanding, colloidal copper is safe, in contrast to what the "copper toxicity" advocates claim. There are nearly 900 positive ratings for this colloidal "metallic" copper that should shame the misguided "copper toxicity" advocates into silence. Or it will at least get them to engage in shrill slander.

https://www.amazon.com/BEST-Nano-Colloidal-Copper-Colloidal/dp/B00Q0VA77E/?th=1

As I suspected, the dose is tiny, as one reviewer noted:

"Hardly any copper in this product. Dosage 30ppm 1-2tsp twice daily. 30ppm =0.003mg. Would

need to take an awful lot just to get 1 mg. Body needs 2-5mg daily."

30 ppm is 30 mg/liter. Even if it were toxic in colloidal form, which it's not, it's not nearly enough copper to be toxic. I find it rather amazing there are so many positive reviews, for a product containing so little copper. So many people reporting positive results, from so little copper, is likely another indication of widespread copper deficiency in society.

CHAPTER 97: HELP ABSORB COPPER: MEAT, CITRUS, PHOSPHATE, CALCIUM, POTASSIUM

"copper absorption is enhanced by ingestion of animal protein, citrate, and phosphate." -- https://en.wikipedia.org/wiki/Copper_in_health

Many copper supplements are "amino acid copper chelates", to help absorption:

Meats are digested into amino acids.

In the last year, citrus has become more well known for helping the body absorb zinc. It also helps the body absorb copper.

Copper absorption as affected by supplemental calcium, magnesium, manganese, selenium and potassium

https://pubmed.ncbi.nlm.nih.gov/2697140/

Abstract

"Effects of feeding supplements of calcium, magnesium, manganese, selenium and potassium on dietary copper bioavailability of humans were investigated. Results indicated that the calcium supplements depressed fecal copper losses and improved body copper retention as did potassium supplements. Magnesium and selenium supplementation of diets resulted in increased apparent fecal losses of copper while no effect of manganese supplementation was found. It may be that the unexpected positive effect of calcium on copper utilization was due to its neutralizing effect on the relatively high level of ascorbic acid provided by the constant background diet. Ascorbic acid is known to inhibit the absorption of copper."

Note: "Results indicated that the calcium supplements depressed fecal copper losses and improved body copper retention as did potassium supplements."

Also note: the abstract does not say how much calcium and potassium supplements improved body copper retention.

Calcium and potassium are also listed as copper antagonists. At high levels, they lower copper.

CHAPTER 98: MAKING MORE CERULOPLASMIN

Ceruloplasmin helps the body transport copper.

Vitamin A, intense heavy bodybuilding exercise, copper itself, boron and maybe molybdenum all help the body make more ceruloplasmin, a key copper transport protein.

from:

https://www.secondopinionphysician.com/ceruloplasmin-deficiency-oxidative-stress-and-iron/

"Steps to Increase Ceruloplasmin (Cp) per Morley Robbins:The Root Cause Protocol"

STOP

STOP Vitamin-D ONLY Supplements (Supplemental “vitamin”-D KILLS Liver Retinol that is needed for Cp) More on Vitamin/Hormone-D…

STOP Calcium Supplements! (Ca BLOCKS Magnesium & Iron absorption)

STOP Iron Supplements! (Iron, or Fe SHUTS DOWN Copper metabolism) More on Iron Toxicity…

STOP Ascorbic Acid (Ascorbic Acid disrupts the Copper < > Cp bond)

STOP High Fructose Corn Syrup (HFCS) & Synthetic Sugars (HFCS Lowers Liver Copper & Raises Liver Iron)

STOP LOW Fat Diet (Saturated Fat is needed for proper Copper absorption)

STOP Using Industrialized, “Heart Healthy” Omega-6 Oils! (e.g. Soybean, Corn, Canola Oils)

STOP Using products with Fluoride (toothpaste, bottled water, etc.)

STOP Taking “Drugstore” Multivitamins & Pre-natals (They contain the first four items above, plus trace amounts of fluoride)

STOP Using Citrate in Foods & Supplements (e.g. “Natural Calm”)

STOP Using Colloidal Silver as an Antibiotic (It lowers Copper status in the body! Nanonized Silver is ok)

START

START Magnesium (Mg) supplements (Jigsaw Mag SRT, Pure Encaps Mag Glycinate, Mag Oil, etc. See Magnesium Supplement Recommendations) to lower Adrenocorticotropic hormone (ACTH) & Cortisol. (Dose: 5 mg/lb or 10 mg/kg body weight. Be mindful of the Mg cofactors: B6, Boron, and Bicarbonate.

START taking the Adrenal Cocktail (4oz fresh orange juice, 1/4 tsp Cream of Tartar and 1/4 tsp sea salt) at 10am and 2pm on an empty stomach to balance electrolytes.

START Cod Liver Oil supplements (1 tsp Nordic Naturals Arctic or 1 tsp Rosita) for Retinol, animal based Vitamin A.

START Whole Food Vitamin C supplements (Innate Response tablets or Pure Radiance Synergy powder: 400 – 800 mg/day (Key source of Copper)

START Using Mother Nature sources for B Vitamins:

– take ½ tsp of Bee Pollen

– take 1 – 2 tsp of Rice Bran (be sure to take AWAY FROM other foods)

– eat 4 – 6 ounces of Beef Liver weekly

(research shows that several B vitamins are KEY for Cp production. Please get these as noted above:) B2 (Riboflavin) – Key for Cu/Fe regulation in the liver; B5 (Pantothenate) – Supports the production of Vitamin C; B7 (Biotin) – Key for Cu/Fe regulation in the liver.

START Using Silica (Diatomaceous Earth) that stimulates an increase in Cp! (Start with 1 tsp in water at the start or end of the day, and work up to 3 tsp [1 Tbs] each day.)

START Boron (1 – 3 mg/day, or add 1 Tbs borax to magnesium baths) – aids in Synthesis of Cp, and regulation of Fe.

START Taurine (500 – 1,000 mg/day) Supports liver copper metabolism

START Ancestral Diet (HIGH Fat & Protein/LOW Carb) Good for Copper absorption

START Iodine (PREREQUISITE: Mg RBC & Se RBC need to be optimal) Until then, add Iodine rich foods like kelp, seaweeds, scallops, cod, eggs, cranberries, etc. to the diet.

My comments on the above from Morley Robbins:

The Stops:

1. I agree with stopping Vitamin D for several other reasons, too. Vitamin D does not help to calcify the bones, it helps to calcify the soft tissues, such as kidney stones, hardening of the arteries, calcium deposits into the joints, and it actually weakens the bones.

2. It seems we do not need calcium supplements, as the average body is very high in calcium. We need things to put calcium into the bones, and thus, we need to avoid Vitamin D supplements (but the sun is good), avoid fluoride, and we need copper, magnesium, silica, boron, Vitamin K, and Niacin, all 6 of which are shown to help put calcium into the bones. There may be more substances.

3. I agree, no iron supplements are needed. The food supply is loaded with extra iron. Better to stop iron supplements, AND avoid too much iron-fortified processed foods like cereals and bread.

4. I somewhat agree with keeping Vitamin C in check. But not to stop it completely. I advocate higher copper levels than Morley, and copper works with Vitamin C to form collagen, a necessary and key functionality of copper in the body. I think 1000 mg of vitamin C about every other day is reasonable. Just as too much C can block copper, too much copper can block C. I took 100 mg of copper and no vitamin C, for about 5 days, and I had bleeding gums and cuts on my skin. Increasing the C with so much copper fixes that problem.

5. Yes, I have found that fructose lowers copper.

6. Saturated Fat is needed for proper Copper absorption? Good to know, thank you, Morley! I usually read meat and citrus helps copper absorption.

7. I agree, vegetable oils are bad. Coconut oil is an exception.

8. I strongly agree to avoid fluoride. It's in more things than just water and toothpaste.

9. I strongly agree that drugstore multivitamins and prenatal vitamins are horrible. Avoid them.

10. While citrate may be bad, citrus helps the body absorb copper.

11. While Colloidal Silver may lower copper, and it's on my list of things that do, I hesitate to say avoid. Colloidal silver kills over 600 pathogens and is a strong assistant to germ-killing iodine, and germ-killing copper. I don't think we always need silver. I take it if I need to. I think we need iodine and copper daily.

The Starts:

1. I agree with taking magnesium. I take "ultra mag" which has 5 forms of magnesium.

2. I disagree with the adrenal cocktail for several reasons. Tartar is the leftover scum on vats of wine. Grapes are sprayed with fluoride used as an antifungal. Tartar is likely a source of fluoride. Second, citrus and salt prevent blood coagulation, and fluoride also increases bleeding. Women doing this adrenal cocktail end up with extremely heavy periods, because they can't stop bleeding. Copper itself is an adrenal cocktail. Salt is good. I'll put salt in grapefruit juice and add copper. This is a far better adrenal cocktail.

A better source of potassium is "NU Salt" found in grocery stores by the salts and spices, it's a salt substitute.

3. Cod Liver Oil? I don't use it. I prefer to avoid fish products; they stink.

4. Whole Food Vitamin C supplements. These are not bad. Just expensive, and the doses are too low.

5. Using Mother Nature sources for B Vitamins? I take B complex supplements. I am not sure who is right on this one.

6. Silica increases Ceruloplasmin? Great. I occasionally take silica. Not much in the last year. Fiji water is high in silica. Silica also helps to bind to aluminum and is recommended by Aluminum toxicity expert, Chris Exley.

7. I take 100 mg boron daily (1/4 teaspoon Borax), not the 1-3 mg Morley recommends. Most Boron advocates say 20 mg is a minimum.

8. I don't take Taurine. I don't like amino acid supplements. I eat beef.

9. Yes, many carbs block copper. Phytates do. I don't eat low carb. I actually exercise, and if you do, you will want carbs.

10. I take more iodine than Morley, I take from 200 to 700 mg iodine daily.

I believe the most important difference between Morley and me is that I advocate higher doses of iodine, boron, and copper than he does.

I like Morley's information. He published his book first!

"Cu-Re Your Fatigue: The Root Cause and How To Fix It On Your Own"

https://www.amazon.com/Cu-RE-Your-Fatigue-Root-Cause/dp/1662910282/

Copper itself helps us make more ceruloplasmin.

"Thus the liver utilizes some copper for its metabolic needs, including synthesis and secretion of ceruloplasmin (a copper-containing protein) which is also involved in iron metabolism"

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3940372/

So many people struggle to get their copper and ceruloplasmin levels up. I believe this is likely because they are taking too little copper. Many people are flat out terrified to go over 10 mg a day of copper; and yet the clear danger is deficiency, not toxicity. Again, healthy people can easily tolerate 20 mg of copper with no problems and no liver damage. Presumably, copper deficient people need even more, merely by definition.

Boron on increasing ceruloplasmin:

https://www.olaloa.com/resources/articles-on-nutrition/174-boron-an-ortho-mineral

"Dietary boron led to increased ceruloplasmin, copper, and Superoxide dismutase in the non estrogen groups."

Molybdenum appears to both help, and hurt, making more ceruloplasmin. Most animal studies show that it hinders ceruloplasmin production, but most animal studies are studying huge amounts, and animal studies are not always applicable to humans.

One study of molybdenum industrial plant workers showed they had higher ceruloplasmin than normal. They did not get molybdenum through dietary intake.

Biochemical abnormalities in workers exposed to molybdenum dust

https://pubmed.ncbi.nlm.nih.gov/496425/

"Abstract

Exposure to molybdenum in dust was measured in a molybdenite roasting plant. This exposure was accompanied by large elevations of serum ceruloplasmin and smaller increases in mean serum uric acid levels in the workers."

It appears to me that molybdenum does help excrete more copper. Those who have difficulty excreting copper, such as in Wilson's, have low ceruloplasmin. Ceruloplasmin is a copper-carrying enzyme in the blood. So it would make sense that molybdenum increases ceruloplasmin, but this probably needs more study or support.

CHAPTER 99: MAKING LESS CERULOPLASMIN

Avoid the following things to avoid disrupting ceruloplasmin.

Fluoride, Vitamin C in the 1500 mg range, iron, and molybdenum at high doses, over 2 mg?

We have already covered fluoride and Vitamin C; both lower ceruloplasmin. Next, iron.

https://www.secondopinionphysician.com/ceruloplasmin-deficiency-oxidative-stress-and-iron/

"Other researchers have found that iron, another trace element in the body, lowers ceruloplasmin when present in the unbound oxidative form, ferrous iron."

Next, prescription drugs could block ceruloplasmin, especially the many that contain fluoride. But this might not even be listed in the side effects. It would be a good idea to read the side effects and see if any of the symptoms sound like a pattern of copper deficiency.

Molybdenum can both increase and lower ceruloplasmin. it is likely that only extreme and excessive amounts inhibit it. Animal studies often go to extreme lengths and they give animals thousands of times more than the normal doses to see what happens. Molybdenum at extremely high levels that you would never get from food, can inhibit copper.

Normal food levels of molybdenum are in the range of 300-500 micrograms, or .5 mg. The highest food source of molybdenum is beans. Supplements rarely have more than 1 mg of molybdenum.

CHAPTER 100: VITAMINS AND MINERALS I'M ACTUALLY TAKING

This is one of my most appreciated articles:

https://revealingfraud.com/2020/08/health/minerals-and-vitamins-im-actually-taking/

At the present time, I am taking:

In my morning cup of coffee, I put:

1. 1/8th teaspoon sea salt.
2. 1/8th teaspoon borax.
3. 1/8th teaspoon NuSalt for potassium. (I tend to cut this back in the summer.)
4. 2 teaspoons sugar.
5. 3 dashes of cinnamon which hides the boron taste
6. 1 teaspoon MSM Sulfur
7. Then I pour the coffee and stir.
8. Then I add the liquid minerals:
9. Fully Saturated Potassium Iodide 5 drops, at 55 mg iodine per drop (occasionally).
10. 5% Lugols iodine, 13 drops (full dropper) for about 70 mg iodine.
11. Selenium, about 100-200 mcg.
12. Copper, 10 mg.
13. Occasionally, colloidal silver, if needed.
14. Milk as creamer. Or Eggnog, in which case, I don't add sugar. Milk hides the taste of iodine.

I nearly always have a second cup, with everything, but lately, we have cut back the sulfur and boron in the second cup, since they may block copper.

Before or after Lunch, I may, or may not, take 1-2 B vitamin complex tabs, and a 1000 mg of vitamin C.

Sometimes with a B12 vitamin. I may or may not take magnesium.

At night, I may or may not take zinc.

My wife and I have recently, and on purpose, backed off on the Vitamin C, zinc, and MSM sulfur, and boron to make sure we are getting enough copper. It seems a good move. I cut the sulfur back down to 1 teaspoon in 1 cup of coffee. We cut the Vitamin C and Zinc to about

every 4 days.

I occasionally take 1 mg molybdenum and small typical amounts of chromium and vanadium.

We took Niacin once or twice in the last three weeks.

About every few days, I'll apply copper to my skin, which adds anywhere from 10 mg to 70 mg of copper to my skin. I usually feel better on the days I do this.

In researching and writing this book, I once went as high as 100 mg copper as I also added it to afternoon cups of juice or milk. I felt great.

The articles on what minerals I'm taking are updated continually as I learn more and adjust and might be more updated than this book.

Nobody should start at the levels I take regularly. Many of the minerals really need an adjustment period, especially iodine, boron, and copper. It could be these are especially difficult minerals to adapt to, because they detox fluoride, which my own studies, in preparation for this book, have convinced me is the biggest problem for most people. The time to adjust to the levels that I am taking might take most people from 3 months to a year. Starting out faster may cause kidney problems, as too much fluoride might be flushed too quickly. Or you might get nausea from the fluoride rushing to the stomach, which can cause vomiting.

People who are most deficient can vomit from as little as 3 mg of copper when they first try it. So start out slowly.

I appear to be taking less Vitamin C and less zinc these days, as I appreciate copper a bit more, and am less scared of copper toxicity, and have an even bigger and better understanding of how many health problems copper heals.

I am now taking 1000 mg Vitamin C once every few days, and 50 mg zinc once every few days. And I have started taking Niacin at least once every few weeks, because I think copper can lower Niacin levels.

If there are any skin rashes, it's time for Niacin.

If there are bleeds on the skin, or bleeding gums, time for Vitamin C.

If there is insomnia, time for zinc.

High copper may block molybdenum, just as molybdenum may block copper.

Molybdenum deficiency symptoms:

https://lpi.oregonstate.edu/mic/minerals/molybdenum#acquired-deficiency

"Acquired molybdenum deficiency

The only documented case of acquired molybdenum deficiency occurred in a patient with Crohn's disease on long-term total parenteral nutrition (TPN) without molybdenum added to the TPN solution (27). The patient developed rapid heart and respiratory rates, headaches, and night blindness, and ultimately became comatose."

I am paving the way here.

I have modified my protocol, loosely basing it on the high iodine protocols out there, and the Niacin and Sauna Detox protocol.

We never take calcium, because we think the body has no trouble getting calcium from foods, and because we drink milk and eat ice cream, and cheese.

We never take Vitamin K, because we drink green smoothies from time to time.

We never take Vitamin A, preferring Beta Carotene from foods.

We never take Vitamin D, because it weakens the bones, and calcifies the soft tissues.

We never take Vitamin E, thinking deficiency is rare.

Note. I have noted twice in this book two sources that said Vitamin E was good with copper. The first study mentioned that it protected pigs against copper toxicity at extremely high levels of copper. The second study was for a Wilson's Disease patient with a bad liver.

If copper still really scares you, then take the Vitamin E, too.

CHAPTER 101: POSSIBLE DEFICIENCIES INDUCED BY COPPER SUPPLEMENTATION

I tend to believe that if copper and other minerals are antagonistic, then they can each deplete the other. So if they can block copper, then copper can block them. If that is true, then high levels of copper could deplete the other nutrients listed in my list of 37 other things that can block copper. These beneficial minerals are as follows:

iodine,

zinc,

vitamin C,

boron,

selenium,

DMSO/MSM sulfur,

silica,

silver,

molybdenum,

calcium,

potassium,

phosphorous,

niacin (Vitamin B3),

I believe we can remove the major minerals, because nearly all the time, the body has plenty. Such as calcium. How would 20-30 mg of copper block the pounds of calcium in the body? I also removed iron, because most people get plenty of iron. I used to think that copper could block iron, as iron can block copper, however, I no longer think that's very likely until we get to very high doses, such as 2000 mg of copper/day over 4 months. One person who did that level for 4 months ended up with short-lived red blood cells, presumably because at that level, iron was blocked. So that's not likely to happen at substantially lower levels. That leaves me with the following to evaluate:

iodine,

zinc,

vitamin C,

boron,

selenium,

DMSO/MSM sulfur,

silica,

silver,

molybdenum,

niacin (Vitamin B3),

So, I will go over this list, using mostly my intuition and experience. Because there are no long-term studies on people who take 30 mg of copper or more, as we have.

iodine: I do not think copper blocks iodine. The reason why is that the only way I can see iodine blocking copper is by the iodine inducing excessive sweating. Since copper does not do this, no iodine would be lost that way. The two can bind together. But we also take more milligrams of iodine than copper. Maybe one day I will reverse it, and see what that is like. There is so much to experiment with, but we are fine for now. We take 50-100 mg iodine.

zinc: I have found that if I neglect zinc for more than a few days, insomnia starts to creep in. Zinc is a great sleep aid. It can also do this if I take too many B vitamins, as both B vitamins and zinc are needed to help the body make hydrochloric acid. If insomnia hits, I take a zinc, which I keep by my bed stand. Zinc usually starts to kick in after about an hour. I also like taking zinc by itself at night, away from the other minerals, to help prevent zinc-induced nausea. Many people say zinc is the worst offender for creating nausea. The immediate solution to this problem is to drink more water. This is harder to do on a full stomach. We take 20 mg zinc about every 2-3 days.

Vitamin C: Vitamin C pills often come in large amounts, such as 1000 mg. It is hard to imagine how 30 mg of copper could block that much Vitamin C, and I don't think that it can. It does not feel like it can. It's usually the other way around. Too much Vitamin C would block the copper from being absorbed. Copper can block, or perhaps use up, Vitamin C if you do not supplement Vitamin C at all. Lately, I and my wife began to feel a bit Vitamin C deprived after about 5 days of not taking any Vitamin C. The symptom is that we both started getting tiny cuts on our skin, which indicated to me slightly more bleeding than usual. Not that we bled a lot. We did get slightly bleeding gums, too. We took our 1000 mg Vitamin C, and this minor problem was instantly resolved. No more cuts, no bleeding gums.

boron: We nearly always take boron in our morning coffee. We usually take about 100 mg boron per cup. So we have not noticed copper working against the boron. I take boron to keep my bones and joints strong, and to help detox fluoride. We recently cut the boron back to 50 mg, or a single 1/8th teaspoon of borax in just the first cup of coffee. We like this better, and we appear to be getting more out of our copper this way.

selenium: We take low amounts of selenium, 100 to 200 mcg, just to prevent iodine-induced selenium deficiency. I have not noticed anything with copper knocking out selenium.

DMSO/MSM sulfur: Sulfur is a stronger copper antagonist. Again, we take a teaspoon or two

of sulfur. So it is more likely that our sulfur is depleting our copper than the other way around. We did an experiment not taking sulfur for a month. Aches and pains crept in. We added the sulfur back, and those went away. That's what sulfur does. Sulfur is also a powerful detoxer. Sulfur also helps copper work better, as both of them detox. We have cut our MSM sulfur back to a single teaspoon.

silica: I have not noticed copper depleting our silica. We don't take silica very much. We could try adding it back in again.

colloidal silver: It is said that silver can displace copper. But we only use silver as a germ killer, and not very often.

molybdenum: Copper can deplete molybdenum, and also the other way around, for farm animals, if the soil is heavy in molybdenum. We have not noticed copper blocking molybdenum. But when we first started molybdenum, about a year into taking copper, we felt as if the molybdenum gave us a bit of a brain boost. We don't feel this anymore. Molybdenum is mostly found in beans, in amounts of 300-450 mcg, micrograms, or .4 mg. So it is more likely that copper, taken at high levels could block molybdenum. Molybdenum is said to help copper work better and help the body excrete copper more. For this reason, I pay attention to molybdenum and try to take some occasionally. Moly deficiency symptoms: rapid heart rate, rapid breathing, headaches, night vision blindness.

I'm updating this at the last minute. My wife noticed she occasionally got a racing heart feeling when she was anemic, and when she started taking more iron about 2-3 years ago. In the last few weeks, as I was writing this book, and noticed that moly deficiency can cause a racing heart, she started taking it, and her "racing heart" feeling, as if it was going to start racing, went away.

Niacin: Classic niacin deficiency is a skin rash, especially around the neck. They call it pellagra. Copper seems to flush the skin. One time, I feel that copper may have begun to deplete my niacin, as I was developing traces of a "necklace" rash around my collarbones. That is classic niacin deficiency. I took niacin, and it went away. I believe, therefore, that copper can block niacin if you are not taking any niacin. We have 500 mg niacin pills, and at that level, since it is so much, it appears it can block copper. We take niacin as a part of a B complex vitamin, and we take a 500 mg Niacin about once every 2-3 weeks.

Vitamin E: We rarely take Vitamin E, because we don't think Vitamin E deficiency is common. However, with taking a lot of copper, Vitamin E deficiency appears possible, as it was indicated in two other cases, as I noticed as I was writing this book, as follows:

Manifestations of copper excess

https://pubmed.ncbi.nlm.nih.gov/9587154/

"increased intakes of antioxidant vitamins like a-tocopherol (Vitamin E) protect against copper toxicity in rats (8)."

And Vitamin E was given to a Wilson's Disease patient, with good results.

We plan to start adding a Vitamin E complex, on occasion.

CHAPTER 102: HOW TO TAKE COPPER SUPPLEMENTS: START SLOW - AVOID NAUSEA

Start slow - It takes 1-2 months for the body to make more copper transport proteins.

There are many different copper transport proteins. Ceruloplasmin and Metallothionein are frequently mentioned. They also both take time for the body to start making more of them. It is theorized that as the body learns to make more of these, the tolerance for copper goes up. It can take one to two months to adjust to each higher level of copper that you take.

Getting past Nausea:

In the beginning, half of people get nausea at 3-4 mg of copper. This is normal, but not everyone experiences it. The body also adjusts to this, and it can take a while to get past it. It took me over a year to get past the feeling of nausea at 6-9 mg of copper. I would take copper, then stop, then start again. Every time I restarted taking copper, the nausea would hit me again at those low levels. Consistency is one way to get past it.

Getting past fluoride toxicity:

I suppose that the feeling of nausea is a result of fluoride rushing to the stomach to bind with copper. I have read that this process can take mere minutes after taking copper. That sounds about right. Nausea hits about 10 minutes or less after taking more copper than you are used to taking. Fluoride actually causes nausea.

There are several ways around the stomach problem likely caused by fluoride detox.

1. Apply copper to the skin.

2. Take a single copper pill several times throughout the day.

3. Take copper with food, in the middle of the meal.

4. Take other fluoride detoxing minerals: iodine & boron.

https://revealingfraud.com/2021/03/health/why-im-taking-iodine/

https://revealingfraud.com/2020/06/health/how-to-get-started-taking-boron/

CHAPTER 103: GETTING PAST ANXIETY

Some people start to feel anxious with copper. This might be another symptom of fluoride detox. I believe it helps if you also start taking iodine and boron, too, as they also help with fluoride detox. Anxiety is a feeling reported with boron and iodine when people first start to take them.

I have several ideas on why this happens. First of all, when you are in a "brain fog" state of being, and then, start to be able to think more clearly and faster than before, this can be anxiety-provoking. Thoughts that may have been buried or suppressed, come to the surface again. Some people call it "racing thoughts". A similar process happens to people in rehab when they get sober, as the brain wakes up and recovers.

Another idea on why anxiety hits is that these things that help to detox fluoride might not detox it all at once. They might "stir up" fluoride and move it around, and a person begins to feel the anxiousness of the nerve poison of the fluoride moving around. People suffering from mercury poisoning mention similar kinds of symptoms.

Imagine vacuuming up the bottom of a swimming pool. Not all of it gets into the vacuum. Some dirt gets stirred into the water a bit and the water becomes cloudy. Suddenly detoxing might be like that.

Another reason anxiety may hit, is not only are people not used to their brains working, better, but they might start questioning many things they think they knew, but with better thinking, are realizing are wrong. It's like waking up out of a bad dream, and wondering who you are. It can also be emotionally difficult for people to realize that the government might make mistakes, and might not have the people's best interests in mind.

CHAPTER 104: MINERALS THAT HELP WITH ANXIETY

Zinc is one of the strongest calming minerals there is. It also helps sleep, as I have mentioned.

Magnesium is perhaps the second most powerful calming mineral. It is actually needed by the muscles to relax. Magnesium is also energizing. Many of the minerals like this; calming yet energizing. Iodine and copper each have both properties, once you get past the fluoride detox symptoms.

Some people find that B Vitamins are stimulating, as the body needs them for energy. Yet they also help you deal with stress, and so they are also calming.

CHAPTER 105: HOW MUCH COPPER DO YOU NEED?

Some studies have suggested that 2 mg of copper per day is not enough.

Most copper supplements come in 2 to 3 mg pills or capsules. This is a standard amount that most people should be able to tolerate. After taking 1 pill of copper every day for a week or two, you might try taking two, as a start.

It is better to take 2 mg in the AM, the 2 mg in the afternoon, than trying to take 4 mg all at once. Less chance of nausea, and you get a more consistent amount throughout the day.

So, if you are thinking, "Well I'm taking copper, and taking 2 x 2mg copper pills!" It still might not be enough.

Other studies have suggested that up to 6 mg of copper per day for up to 42 days is not enough to recover from induced copper deficiency.

I am not trying to avoid "acute copper deficiency". I want to go beyond fixing copper deficiency and to achieve a strong brain and body. I want optimal amounts of copper for optimal health.

My own experience has repeatedly shown me that 10 mg of copper per day is not enough for me, and my athletic lifestyle, and all the other supplements I take.

I feel best in a range of between 30 to 70 mg copper per day.

At 100 mg copper, I had a bit of nausea and diarrhea the following day.

Vitamin C advocates and Magnesium advocates both advocate taking those substances "to bowel tolerance", meaning when diarrhea hits.

Vitamin C, titrating to bowel tolerance, anascorbemia, and acute induced scurvy

https://pubmed.ncbi.nlm.nih.gov/7321921/

Taking Magnesium to Bowel Tolerence

https://www.chiropracticspokane.com/taking-magnesium-to-bowel-tolerence/

There is also a "salt cleansing protocol", where people take salt water until it passes through them. https://www.healthline.com/health/salt-water-flush

In the future, upon more people getting familiar and comfortable with copper, and actually enjoying it, people might suggest taking copper "to bowel tolerance".

I can not tell you how much copper you will need. Your needs are likely to be different than mine. We are not all the same size. Bigger people would need more copper. We all have different athletic demands on our bodies. Athletes need more copper. Sick people need more copper. Depending on your diet, if you eat more sugar and more cholesterol that block copper, you will need more copper.

I have suggested taking copper in the morning, and zinc at night. Copper is energizing. Zinc is relaxing.

We also might want to take Niacin and Vitamin C at night, too, since they block copper. Or on alternating nights.

On the other hand, many metabolic processes happen only at night, and we may wish to be topped up on copper on some nights, too.

To slowly scale up your copper, you might want to double the amount you take each month, and see how you feel. As follows:

In the first month, take 2 mg/day.

In the second month, take 4 mg/day, spaced apart.

In the third month, take 8 mg/day, 4 mg am, 4 mg afternoon.

In the fourth month, 16 mg.

In the fifth month, 32 mg.

In the sixth month 64 mg. And then hold, or scale back.

And some will not be comfortable going that high, and that's fine. Trust your experience.

Your own experience is a thousand times more reliable than "testing". It's also far cheaper.

CHAPTER 106: HOW MUCH COPPER, AND HOW LONG DOES IT TAKE, TO FIX A COPPER DEFICIENCY?

It is also not up to me to tell you what your tolerance levels are, or how much discomfort you are willing to tolerate.

I have no idea of how copper-deficient you might be, and I have no idea how many other toxins your body might have to deal with as copper begins to help you detoxify.

There are many other ways to assist the detox process. Fasting. Niacin and Sauna Detox Protocol. Green Smoothies.

There are also Herxheimer reactions, whereby when you do something new, you kill off bad bacteria and fungus, and as it dies, it releases more toxins into the system. This also happens as you lose weight because toxins are often trapped in the fat tissues.

The only way to fix copper deficiency is to take enough copper supplements or eat liver.

I suppose there could be other theoretical ways to fix it. You would have to stop taking anything that depletes copper, and I don't think that is even possible, because there are so many other things that deplete copper. That has not been studied, because I'm still writing this book, and to my knowledge, I have the largest list of things that block copper that I have found anywhere.

And some say Americans are exposed to anywhere from 600 to thousands of toxins. Since copper helps to detox, then presumably most of them would deplete copper. How can anyone avoid them all?

Also, you could try to take substances that increase the absorption of copper: meat, citrus, calcium, phosphorous, potassium, Vitamin A, and boron.

Some people are flat out terrified to take even 1 mg of copper, because they were told it is toxic by their doctors. In my experience, the people most terrified of copper toxicity are the most copper deficient. They are clinically copper-deficient with nearly zero copper in their blood. Or they have put themselves through self-imposed copper detox programs and lowered their copper so much that thinking has become difficult for them.

But studies have shown that to fix a copper deficiency takes more than 6 mg copper per day, for over a month and a half.

I have read of people complaining that they cannot get their copper levels up even after taking 30 mg copper a day for over a year!

It is often said that mineral deficiencies take at least three months to correct. This presumes you found a dosage that is sufficient to recover from the deficiency at that rate, and you identified and stopped the things blocking copper.

Taking low rates of iodine, 12 mg, the iodine doctors found, meant that it took a year to become fully sufficient in iodine. At 50 mg/day of iodine, most people became iodine sufficient after three months.

I feel like I keep re-discovering copper, and every time I do, I end up taking just a bit more, and I feel even better each time. After I started taking about 20 mg of copper, and about half of my symptoms began resolving in about 3-4 days. Other symptoms took longer. I'm about 4 years now into taking 10 mg to 70 mg copper/day, and I still feel various subtle forms of improvement; better joints, more clear thinking, better memory, more energy, less stress, more patience, more calmness, better insights, faster and more accurate reflexes.

Just as I'm finishing writing this book, I noticed a new symptom resolve. I had a white spot, actually several, on my upper arms, which I suspected was from sun damage. The biggest one on my right arm was just under the size of a dime. Now, I can no longer see it. It has filled in with color.

According to researchers, it takes the body from 7 to 10 years to replace all the cells in your body. It might take that long to fully recover from copper deficiency. As new proteins form, you want them to form with the copper they need. And who knows how long it takes to detox from fluoride!

CHAPTER 107: FIXING MY COPPER DEFICIENCY

I first experimented with copper when I was around age 19 in college. I had developed bone spurs on my feet from ski racing, and whatever nutritional deficiencies were in my diet at the time. But many skiers got them. I had read "Sam Biser's Health Discoveries Newsletter" about how magnesium, zinc, and copper could help decalcify tissues. I figured I would give it a chance. I was diligent and hopeful, and it worked. My feet healed over the summer, and the bone spurs shrank. There was a bit of a warning, however, that too much copper might deplete other minerals. So, I tried to not overdo it. At the time, maybe I was taking 9 to 12 mg of copper, 30-60 mg zinc, and about 400-800 mg magnesium. It was difficult, but I persisted. And when I got the results I wanted, I quit, because I did not like nausea, and I didn't want to deplete other unknown micro minerals.

I took other herbs, and vitamins, off and on over the years, I tried to stay healthy, exercise, and keep myself in reasonably good shape in the gym.

I was rather weak by age 30, weighing only 180 pounds. I got back into the gym, and was very strong by age 34, hitting over 210 pounds, but then tore a muscle in my left elbow lifting.

Alcoholism got me in the year 2011 when I was 41, from many betrayals and business difficulties, and I went to rehab at the Betty Ford Center in Southern California. (I am now 10 years sober.)

By age 42, arthritis in my lower back and everywhere was simply getting worse, and I was getting sick a lot. Not the best first-year sober.

By age 43, I decided to quit pain killers and all mints because they cause bleeding, and I started drinking green smoothies, like a quart a day or more, in part, because I knew greens helped to stop bleeding, and I have a mild bleeding disorder, the type II blood clotting factor disorder.

By age 45, I had healed my arthritis with greens and isometric stretching.

By November 2015, I discovered that too many greens were too demineralizing, and I was having problems with dehydration, low energy, and constipation. My energy in the gym was getting worse, which I had attributed to stress and overdoing it. From blood tests, I tested lowest in zinc and second-lowest in copper, high in iron and selenium, and low in testosterone and free testosterone.

Taking zinc fixed things, and oh how I raved about zinc. And I started taking 3-9 mg of copper, which I was less concerned about. I was so surprised zinc could make such a big difference.

Two months later, I started taking boron. A month after that, I added iodine and the high iodine protocol to my supplementation. Iodine was a big life-changer for me mentally.

So after a year, taking 3-9 mg of copper, with zinc, boron, iodine, and the high iodine protocol, I realized something. I had not had a nosebleed in a year. And I learned from a woman online, that copper stops bleeding. I looked it up and confirmed that copper stops bleeding. Excellent. Copper turned out to be the best thing I ever did to stop bleeding, and I have lists of things for that, including cayenne pepper, greens, Vitamin C, etc.

But around this time, I began to question the copper. Because it was making me nauseous. I did not like the feeling. I began to try to trust my gut, and I quit the copper just to see if I could live without it. And maybe see if the nosebleeds returned.

I fell into a bit of brain fog and fatigue and seemed to forget about my experiment. I began having super low energy in the middle of the day. It was like I would get super sleepy like I was going to pass out from exhaustion and sleepiness, and I began to even fear leaving the house because I was so exhausted and super sleepy all the time. And I began to sweat more and more at night, drenching a few t-shirts and then up to 5 t-shirts a night. I finally fainted one night after a very exhausting day of working out, sweating like crazy, and eating pizza.

My peripheral neuropathy came back in my hand again. I would have to try to do downward dog to get the blood flowing back in.

There was depression again. Time flew by faster. Brain fog was a mystery because I was on iodine. I was wondering why the iodine stopped working. It's almost difficult for me to remember why I let it all get so bad, just from avoiding copper. But I was happy the nausea was gone, because I was avoiding copper.

I thought I had adrenal fatigue. I tried taking more B vitamins, and more herbal adrenal support. It only sort of worked a little tiny bit.

Eventually, I found my way back to copper as I began to get nosebleeds again, which had stopped since I had been taking copper at 3-9 mg for a year. My bleeding disorder (my superpower) saved me. I also realized I had a few other copper deficiency symptoms, and they were not going away even when I had been taking 9 mg of copper. Such as minor arthritis pains, fatigue, neuropathy in my hand, and maybe a couple of others. I did not realize that the time I fainted was copper deficiency until I wrote this book!

I decided to look more into why there was an upper limit at 10 mg for copper. It made no sense. That's the level of no liver damage observed? Ok. But what was the level of liver damage observed? There is no such study. Just a case study. That makes no sense.

As an alcoholic, and as a former pain pill user, I used those, knowingly causing some measure of liver damage to myself. So what is the level of copper that causes just a bit of liver damage? There was no such information. That's peculiar. Seemed like things were not adding up. Even partly in a brain fog caused by low copper, I could figure this much out. Why can't others?

I was a ski racer. I can court a bit of danger.

I was also an investor. We measure risk vs. reward all the time.

I realized I was copper deficient, with symptoms, while taking 10 mg of copper, and I learned there was no real danger at or above 10 mg, so what did I do?

I decided to avoid the risks of copper deficiency, and I started taking more copper. I felt wonderful, except for occasional nausea, which was less likely to hit if I was consistent. And less likely to hit if I spread copper throughout the day.

I started writing essays on copper, sharing my discoveries. I ended up writing over 10 articles on copper, as follows, but in reverse order, I started at the bottom, note the dates:

https://revealingfraud.com/2021/06/health/how-to-make-a-1mg-drop-liquid-copper-sulfate-supplement/

June 2021

https://revealingfraud.com/2020/12/health/copper-toxicity-from-an-iud/

December 2020

https://revealingfraud.com/2020/11/health/how-the-government-determined-the-rda-for-copper-at-0-9-milligrams/

November 2020

https://revealingfraud.com/2020/11/health/how-much-copper-is-in-the-human-body/

October 2020

https://revealingfraud.com/2020/10/health/how-to-make-a-copper-sulfate-supplement/

October 2020

https://revealingfraud.com/2020/11/health/lupus-is-copper-deficiency/

May 2020

https://revealingfraud.com/2020/11/health/copper-toxicity-refuted/

May 2020

https://revealingfraud.com/2020/11/health/copper-and-other-minerals-detox-fluoride/

May 2020

https://revealingfraud.com/2020/11/health/does-copper-cause-alzheimers-disease/

August 2019

https://revealingfraud.com/2020/11/health/high-copper-the-missing-nutrient-on-the-high-iodine-program/

June, 2018

To recap. In November 2015, I was diagnosed with low copper by a blood test, and took copper from 3-9 mg for at least a year or more, maybe until mid to late 2017? I then stopped copper, and the brain fog hit, and other copper deficiency symptoms. I discovered copper again and started taking over 20-30 mg rather quickly. "A few weeks later", I wrote my first article on copper in June 2018.

I was particularly excited by my first article on copper because I had discovered that by taking up to 30 mg of copper, I could work out so much harder. I could go as hard as I could in the gym, going to failure on multiple sets, emphasizing the slow negative reps, and I would barely be sore at all the next day. And the amounts I was lifting quickly doubled in a month.

To my knowledge, the "workout lore" and "conventional wisdom" is that there is nothing you can do to prevent delayed onset muscle soreness. But taking copper greatly enhanced my workouts, and greatly diminished that soreness.

But that was not all. By my fourth day taking more copper at 20 mg, my heavy night sweats stopped. And my involuntary napping and exhaustion went away. My joints felt way better. After about a week or two, my neck was no longer hurting. And I had energy and brainpower after my workout!

There was also a problem. I developed horrible sneezing fits right after taking lots of copper, like I was having a major allergic reaction. I had chewable zinc, which I suspected would help, and it did. It helped instantly. This only lasted about a month, and I think zinc is a stronger antihistamine than copper. I was brave enough to not think "I'm allergic to copper", because there is no such thing. Instead, I realized it was some kind of cleansing reaction, and that I would get through it. I did.

In May, 2020, I realized that copper detoxes fluoride. I previously knew that iodine and boron detoxed fluoride. This encouraged me to take even more copper, and I got even more benefits in the gym. Unfortunately, the cost of taking 30 mg of copper per day began to get a bit costly and annoying, and I could no longer find copper supplements in my local health food stores, as they were either sold out, or I had bought everything, and they were not restocking. So, even though I was trying to take more copper, it would run out quickly and frequently.

By October, 2020, I hit another major discovery. I figured out how to make a copper sulfate supplement. Not only did my bill for copper supplements drop from $45 a month to nearly nothing... but the bigger discovery was to apply my 1 mg copper per drop copper sulfate to my skin, and I could easily bypass nausea, and get up to 80 mg of copper rather easily, by counting the 70 mg I would apply to my skin.

Right away, I noticed my feet felt very much improved. And I could sprint very fast and my feet felt great and no longer hurt.

Around this time, I began developing less cardio ability. I was sprinting, so it was not bad, but the 100 yard dash began to be "too difficult". Why? Unsure. I might have stepped up too many other copper blockers "to be safe". It might have been another cleansing reaction. I might have put on too much more muscle, too quickly. But after 2-3 months, it passed.

In writing this book, I again re-discovered the importance of copper. And, of course, I was encouraged to take more. Also, I lowered my intake of msm sulfur and cut boron in half, and started taking less Vitamin C and less zinc. All good things. My joints feel fantastic. I feel great in the gym, even though I'm lifting less to focus on the book.

It's hard to put some of these changes into words. What do "fantastic joints" feel like? I have to go back into my memory, which feels like so long ago. When my joints hurt the worst, it was like the bedsheet itself would hurt my toes. As if the bed would simultaneously hurt every major joint that touched it. When lifting, I could feel both weakness and pain at the most stretched out parts of every single movement that there was.

Now, every bed is the most comfortable bed in the world, and I don't even feel my joints. Sheet bothering my toes? Sounds silly. As for lifting, I do deadlifts in a funny new way. I bend over at the waist, and I bend my elbows, so I can hold the weights on the floor, and get that full range of motion. No pain in either my lower back or my hamstrings. I do chest flys / presses with dumbbells, a movement that allows me to "move the bar" far deeper than my chest would be, and really stretch out my chest. There is no pain, no tightness, no weakness at the deepest range of motion, there is only strength, and comfort.

My knees have popped ever since I was about 23. They just stopped popping, and I can no longer make them pop. My skin is so smooth. Yesterday, I drove 9 hours, and I had zero body aches and was never sleepy. Who am I? Whose body does my body belong to, and how did I get it? Copper!

I also had a white spot on my upper arm, likely from sun damage. And many other smaller ones. For three years on high copper, it did not disappear. Finally, it's gone, as I noticed in this last month.

There are so many other little things that simply vanished. I never stand up and get any dizziness. When things are gone, it's hard to remember you ever had them.

I heal from everything so very fast. Last winter, I slipped and fell on my back, which hit against the curb, because I was on ice. Hurt like hell, of course. Within 3 days, I no longer had any pain.

Lifting weights is easier than at any time in my life, and I feel I could easily put on more muscle than I want to carry around with me.

At some point on the high copper, I began to feel a bit tighter and less flexible. I worried abou that a bit. But I was also doing far less stretching, because I was no longer in pain. My range of motion is actually very good in many ways. It was just a strength in the stretched out positions

that I was not used to feeling.

There were a lot of mental changes. All change is slightly uncomfortable. I've mentioned this before, but it's hard to imagine and talk about a "faster" brain. So, here are some of the mental thoughts and concerns I've had while adapting to the brain changes. It might sound a bit crazy and manic, but it is what it is.

So many thoughts! How do I turn it off? Why should I want to? Can I get used to this? Am I turning manic? Manic, definition, feeling excited, energic, frantic, and euphoric. Yes, but is that pathological or bad? Maybe not. Probably not. It this how it's supposed to be? Is this temporary, or my new normal? Hey, I'm having so many insights. This is actually fun. Wait, I can turn it off. But why am I doing that? Maybe I should read more. I know, let's read about copper again! Oh this is nice, I remember everything so much better now. Hey, this relates to that! How come nobody ever noticed that before? Oh right, I'm the only one taking 30 mg to 70 mg of copper. Is the whole world deceived? Can this be sustainable? Am I going to crash? Nope, no crash. Hey, another great energetic day. Feeling great in the gym again.

Oh crap, traumas from my past are coming up again. But it's not killing me mentally to think about it. That's weird. And I don't think of these things as often. Of course, it sucks, but I'm not drained. I'm not feeling shaky. I'm ok. I'll never do those things again. Wow, those people who attacked me were so sensitive and prideful and jealous. Oh yes, I have been those things, too. I should probably be more patient with people. Wow, it's so much easier being so much more patient. Why it is that I'm no longer impatient, and I don't even have to try?

So I'm energetic and calm? This is nice. I can do this. Maybe this is how we are supposed to be. How was it before? Like a fog. Like a distant dream? I used to be more anxious and more angry, but didn't quite realize it? I don't want to dwell on the past. My brain is working great! I have so much more control over what I choose to think about.

I have fast reflexes like a teenager. My overall coordination feels so much better. I have better balance. Better strength. Better range of motion. And I heal so fast! What if it all really is far better? Is this better than steroids? This has serious implications for the world of athletics. This is going to be big. This is going to change the world. There is nothing that is going to stop this. This is going to be like pandora's box, but in a good way.

What have I stumbled into? Did I stumble? Was it intentional? Why me? Was I the only one looking? Really? I need confirmation. Let's study more. Let's share more.

A couple of times, I have felt a bit like the lead in the fictional story, "Flowers for Algernon", which is a story about a disabled man who gains super intelligence, and then loses it. But I do not fear I will lose the increased intelligence.

My brain now, compared to before, might be described a bit with the words "racing thoughts". However, it's more controlled than I made it sould like in the previous pages. That was just a quick run through of some of the thoughts I have had, to try to explain the mental awakening.

Fluoride is a neurotoxin. As we detox it, our brain wakes up. Others have described "racing thoughts" on copper as a "side effect". No. It's not bad. It's simply not what a toxic brain is used to. It's what a better functioning brain does. I believe we must embrace it.

Oh yes, and like with iodine and boron, copper also seems to increase the vivid dreams. These may be disturbing, depending on the dream, but it's a change we also need to learn to embrace. We are not going crazy, it's just part of the process of positive changes.

I am learning to take more copper and iodine even at night. The reason is our brains and bodies heal at night, and iodine and copper are big nerve healers, and intelligence boosters. This does increase the vivid dreams, and I'm learning to embrace this part of the healing process.

I can see a potential counterargument to my own experience on copper, as follows:

"Jason, you failed to eliminate your own potential co variables, as you take so many minerals! Therefore, how can you attribute your healing experiences to copper, when you take so many other things?"

Fair enough. This explains my subtitle: "Healing with Minerals".

Although the focus of this particular book is on copper, and the scientific studies on what copper does, I am not required to eliminate all that is good from my life in order to study copper. Could you imagine the absurdity of forcing me on an all sugar diet plus copper, to eliminate the benefits of a well rounded diet of good proteins, complex carbs, fruits and vegetables? We have to be realistic. And we should all be doing the best we can, in all areas.

Probably the dumbest thing I did was eliminate copper, to test whether or not I needed it. After all, it was causing me stomach upset. But I learned that an upset tummy is really not a sign that is trustworthy. And now, my digestion is better than ever! And now, my appreciation and respect for copper is better than ever. "The more you know!"

CHAPTER 108: PUTTING IT ALL TOGETHER

Most people are copper deficient, but do not know it, and doctors don't either.

Copper is needed by every cell, every tissue, every organ in the human body. Most of the healing functions of what copper does can be directly traced to copper being essential to the functioning of copper-containing enzymes. Copper helping to build collagen alone makes copper a widely important function for nearly all body tissues; especially bone and muscles. Copper increases ATP for energy, which is essential for growth, recovery, healing, and feeling great. Copper is essential for nerve functioning, and especially brain functioning. We need copper for hormones and neurotransmitters. We need copper for better circulation, and the heart, lungs, liver, and every major organ, including the pancreas to prevent diabetes. We need copper for the immune system, and germ killing. Copper is non-toxic and safe at levels studied up to 20 mg/day, and likely safe at levels above that.

Copper deficiency causes a widely diverse array of problems, nearly all of which are the flip side of the copper-containing enzymes not functioning well. Athletes are especially prone to copper deficiency. A wide array of both nutrients and toxins block copper.

Iron is used in many packaged foods to "fortify" them, and iron blocks copper.

Fluoride blocks copper and most people have far more fluoride than copper in their bodies, 2600 mg fluoride compared to 72 mg copper, and it should be the other way around.

The government has conducted nearly fraudulent studies, and no further real studies, to establish both their RDA and UL for copper, and should be completely ignored until they conduct actual science and testing that can be repeated by others.

Nearly everything people die from is, at least in part, from copper deficiency.

Copper can cure the symptoms that lead people to take 49 out of the top 50 drugs, except the mineral potassium.

Copper Toxicity is a fraudulent and mistaken concept. Copper is toxic at 20,000 mg, not at 2 mg. There are no viable scientific mechanisms of action for a low level of copper toxicity.

Unless you eat a lot of liver, you need a copper supplement.

The best copper supplement is copper sulfate, and the price is so low, it's nearly free.

While many supplements block copper, the synergy is stronger and more important. Know the levels of the nutrients you need, and don't just take a multi-mineral that has all the minerals and vitamins way out of balance.

Taking very high levels of copper, 30-100 mg, can lead to a few mild nutritional deficiencies of Vitamin C, Zinc, Niacin, and perhaps molybdenum.

When taking copper, start slow, and scale-up, and do not neglect the other nutrients.

I think the very long list of positive things copper does for us, is also another refutation of copper toxicity.

I think the number of diseases, most of them major, associated with copper deficiency, is another strong refutation of copper toxicity.

It is not beyond the realm of possibility the declining culture and changes in societal values are a reflection of the worsening copper deficiency among the population.

You are now an expert on copper.

Once copper starts working for you, nobody will be able to stop you from telling others.

As a copper-deficient population begins taking copper to get healthier than ever, this should start the copper revolution.

ABOUT THE AUTHOR

Jason Hommel

I was a jock and nerd in high school and college.

I was a football player and alpine ski racer.

I was nationally ranked in alpine ski racing in the slalom, around top 50 in the nation by 1993.

My major was Psychology, with almost a minor in Philosophy, but my interest was sports Psychology and Business Psychology.

From 1998 to 2015 I ran a website: bibleprophesy.org

From 2003 to 2014 or so, I ran silverstockreport.com, which was a good success, until it was not.

In 2007, I personally encouraged Ron Paul to run for president, and when he decided to do so a month later, I promoted him in my very successful newsletter:

https://revealingfraud.com/2007/04/silver-gold/how-to-fix-gold-price-fixing-ron-paul/

I had two boys in 2008 and 2010.

I divorced in 2011 and went to rehab.

The IRS put me out of business in 2014 with fraudulent audits, falsely claiming I earned $4 million in 2009 when I really lost $800,000. They denied my tax loss and then levied me a tax bill of $2 million, which was beyond my ability to pay.

Tax court was in 2016, and the decision was in 2020, long after I was broke.

In 2013, I was recovering from the traumas of the business and personal betrayals, and getting healthy with greens and stretching, fixing my arthritis.

In 2014-2018, I was discovering the effectiveness of the many minerals for my health and mental recovery.

In 2019, I married Jennifer Cosper Hommel.

In 2020, I wrote "Beyond the Arthritis Fix: Protocols for Strong Joints". The book promotion was put on hold as I immediately knew I had to write this book on copper, as my research for that book led me to discover that copper deficiency is involved in every major disease that people die from.

BOOKS BY THIS AUTHOR

Beyond The Arthritis Fix: Protocols For Strong Joints

I suffered 25 years of arthritis that became horrifically painful by my late 30s and early 40s. I recovered through a specific way to eat greens and a very specific method of stretching.

Not content to simply be pain-free, and wondering what the drawbacks of greens might be, I discovered minerals and gained layer upon layer of health and strength with each one. Again, not content to simply take minerals, I researched what the possible drawbacks might be for each one, while trying to discover the ideal and optimal amounts to take, which are typically far higher than the RDA minimums. I continued to study vitamins, minerals, toxins, foods, and exercises for arthritis and made many discoveries that I am compelled to share in this book.

I have gone beyond healing my arthritis, and I have developed super-strong joints that are totally pain-free. Last year, I was squatting 200 pounds for 20 reps, until my legs simply got too big (by age 49) to go for a comfortable walk. I wish I knew all of these things when I was aiming to be an Olympic athlete in my early 20's.

There is a growing controversy over the health benefits of many of the vitamins and minerals. What you think you know, may not be so. There is a growing divide between what is popular, and what is scientifically accurate. There is a huge difference between what is taught in Universities in curriculums taught to doctors and nutritionists, and what is being discovered by research scientists at other Universities.

Popular health advice is bad. Popular medical advice is usually even worse. So, what then, are my sources? I love showcasing the contradictions within government science and publications, and explaining which side of the argument is more trustworthy and why.

I cover 15 vitamins and minerals, describing which ones are best for arthritis, and why.

You might find healing from just one mineral. But the others are listed also, because they also work, and you never know what you might be deficient in until you look into something new, or in case the first one does not work in 2-3 weeks as it should.

I explain why one popular vitamin for arthritis and one popular mineral for arthritis can actually cause arthritis. I discuss the many mechanisms of action and I link to the scientific articles behind them all.

I cover 7 outstanding foods that are great for arthritis.

I go over at least 11 popular causes of arthritis, and how to avoid them.

I discuss why bleeding correlates with arthritis, and discuss 11 things that cause bleeding, and about 15 things that stop bleeding.

I discuss how to naturally boost your hormones with foods, vitamins, and minerals, and especially herbs to speed healing to heal faster from arthritis.

I discuss a wide array of exercises and exercise programs to help heal from arthritis, and why exercises are not to blame for arthritis, yet can be blamed if done inappropriately.

Arthritis hits 23% of Americans. It's a national disgrace and tragedy. It might even be a national security issue! This book covers the undiscovered, little-known research that needs to be well known across the land.

I have healed from arthritis and developed not only strong joints, but I have healed many other minor health problems along the way such as old joint injuries, bone spurs, hyperhidrosis (excessive sweating), acne, gray hair, adrenal fatigue, exhaustion, brain fog, anxiety, depression, hemorrhoids, athlete's foot, heel cracks, candida, and more. And I just don't get sick or congested anymore, either.

I also show you how you can make 4 supplements for pennies per month if you can measure and mix a powder in boiling water, which will save you big money in the long run, and easily cover the cost of this book.